"Every little helps"
Effects of brief mindfulness or relaxation interventions in patients with acute depression

Guerreiro Da Costa, Ana

Awarding institution:
King's College London

Volume I

Main Research Project and Service Evaluation Project

Ana Paula Guerreiro da Costa

Thesis submitted in partial fulfilment of the degree of Doctorate in Clinical Psychology

Institute of Psychiatry, King's College London

May 2014

Acknowledgements

I would like to sincerely thank my research supervisors- Professor Paul Chadwick and Dr Thorsten Barnhofer- for the excellent supervisory experience they provided me. Their guidance, kindness, clarity of thought, and enthusiasm were invaluable to me. Moreover, their support and input regarding dissemination of the main findings of the research through paper writing and conference presentation made the process more rewarding.

I am further thankful to Dr Daniel Stahl for his expert statistical advice and patience to clarify all my statistical queries.

I am also grateful to the DClinPsy core and administration teams for helping the process to be as smooth as possible.

I would also like to thank Dr Janet Wingrove, Jeremy Oliver, Hielkje Verbrugge, and Leslie Rossouw for their help in accessing the clinical sample of the main project of the current thesis.

I am also extremely thankful to Dr Rachel Mycroft who supervised my service evaluation project, and encouraged me to disseminate its results within the South London and the Maudsley (SLaM) trust. The possibility that further trainee-run perinatal services might be considered within SLaM is very exciting.

A heartfelt “thank you” also goes to Dr Martin Anson for his support throughout the course and thesis writing.

I am also indebted to my dear fellow trainees. These last three years would not have been the same without their support, friendship, and shared experiences!

I would like to thank my parents (Fernando Pires da Costa and Maria Rita Pais de Ramos Guerreiro) and brother (Luis Ricardo Guerreiro da Costa). Their unconditional support has always given me strength.

Last but not the least, I am truly thankful to all the participants of these research projects, without whom this research would not have been possible.

Table of Contents

Main Research Project

“Every Little Helps”: Effects of Brief Mindfulness or Relaxation Interventions in Patients with Acute Depression

Supervised by

Professor Paul Chadwick

and Dr Thorsten Barnhofer

Table of Contents

List of Tables

List of Figures

1.0 Abstract

Introduction: Depression can be a very debilitating condition and can take a persistent course. Mindfulness-based interventions (MBI) have shown benefits for reducing risk of relapse and current depression. However, despite a strong body of evidence, there are currently few studies that have investigated the relative efficacy of MBI compared with an active control intervention. Moreover, little is known about purported mechanisms of action in MBI. The present study aimed to examine the effects of a brief mindfulness intervention as compared to a relaxation intervention in a sample of depressed patients. In addition, the study aimed to investigate which psychological variables contribute to changes in symptoms and mood.

Method: Forty depressed patients (DPs) were recruited from the waiting list of IAPT services. Twenty participants were randomly allocated to a mindfulness intervention and 20 to a relaxation intervention. Participants (n= 40) attended two face-to-face assessments one week apart (active treatment phase), and had a follow-up one week later (n= 37) (follow-up phase). Participants were taught the intervention (mindfulness or relaxation) in the first assessment and were asked to practise it daily over the following week. Depressive symptoms, cognitive functioning, and emotion regulation were assessed at pre, post-intervention and follow-up.

Results: From pre to post-intervention, self-reported symptoms of depression significantly decreased, cognitive functioning and emotion regulation significantly increased, changes were maintained at follow-up, but no differences between the two groups were found. Decentering and mindfulness were significant predictors of changes in depressive symptoms during the active and follow-up phases of treatment, respectively.

Discussion: Both mindfulness and relaxation interventions reduced depression and enhanced cognitive functioning, which points to common elements between the two interventions. Decentering and mindfulness were common predictors of change. The findings have clear clinical implications, but also raise challenges regarding selecting a suitable active comparison treatment for mindfulness research.

2.0 Introduction/Brief literature review

The present study focuses on the effects of two brief interventions- mindfulness and relaxation- on depression. In addition, the study examines the effects of these interventions on a range of cognitive and emotion regulation factors associated with depression. Accordingly, this chapter will provide a brief overview of depression phenomenology, its aetiological and maintenance factors, and its treatment in the UK. The second part of the chapter will focus on the use and effectiveness of mindfulness and relaxation interventions for depression, and will review some mindfulness correlates and potential mechanisms of change. Finally, the chapter will delineate the aims and hypothesis of the current study.

2.1 Major Depressive Disorder

2.1.1 Phenomenology

Symptomatology

Major Depressive Disorder (MDD) [1] is a common mental health disorder, with a multi-factorial causality, a broad range of severity, and a high risk of relapse. According to the Diagnostic and Statistical Manual of Mental Disorders 5th Edition (DSM-5) (American Psychiatric Association, 2013), MDD can be diagnosed when an individual has experienced a single Major Depressive Episode (MDE), or has suffered from two or more MDEs (recurrent MDD) separated by an interval of at least 2 consecutive months without clinical symptoms. The diagnostic criteria for MDE include: depressed mood (representing a change from the person's baseline), or a loss of interest or pleasure in daily activities for more than two weeks. In addition, a MDE includes five or more of the following specific symptoms, present nearly every day, and causing impairment in social, occupational or educational functioning: (1) depressed or irritable mood most of the day; (2) decreased interest or pleasure in most activities, most of each day; (3) significant change in weight or appetite; (4) insomnia or hypersomnia; (5) psychomotor agitation or retardation; (6) fatigue or loss of energy; (7) feelings of worthlessness or excessive or inappropriate guilt; (8) diminished ability to think or concentrate, or indecisiveness; (9) recurrent thoughts of death or suicide, or suicide plan. Moreover, DSM-5 (APA, 2013) proposed that anxiety symptoms (such as irrational worry, fear that something awful might happen, and preoccupation with unpleasant

[1] The terms Major Depressive Disorder (MDD) and depression will be used synonymously and interchangeably.

worries) may also be indicative of depression. MDD severity is determined by both the number and severity of symptoms and the degree of functional impairment (National Institute for Health and Clinical Excellence, 2009).

Burden of disease

MDD is one of the primary causes of disability worldwide, and has high social, emotional, and economic costs (Murray & Lopez, 1997). It can be associated with a range of structural impairments, including low educational achievement or poor marital outcomes, and with day-to-day impairments, such as reduced performance in productive and social roles (Kessler & Wang, 2009).

Prevalence

A recent large epidemiological study in the US indicated that MDD has a lifetime prevalence of 16.2%, and a 12-month prevalence of 6.6% (Kessler et al., 2003), confirming previous findings of high prevalence in Western countries. It is more prevalent in females than in males, with a female to male ratio of 1.64:1 (Romans, Tyas, Cohen, & Silverstone, 2007). These gender differences are likely to be related to childhood adverse experiences, sociocultural roles, psychological attributes related to vulnerability to adverse life events, and coping skills (for a review of gender differences in depression, see Piccinelli & Wilkinson, 2000). Age at onset of MDD spans across childhood (age<12) (12%), adolescence (age 12-17) (25.2%), early adulthood (age 18-44) (50.2%), middle adulthood (45-59) (10.2%), and older adulthood (age>60) (2.4%). The peak time of onset is between the ages of 20 and 30 years with earlier age of onset associated with more severe and recurrent forms of MDD than older age of onset (Zisook et al., 2007).

Comorbidity

MDD was found to be comorbid with at least one of the other DSM-4 disorders in approximately 73% of patients, and with two or more disorders in 37% of patients. Anxiety disorders are the most frequent comorbid psychiatric disorders, followed by substance use, impulse control, and eating disorders (Zimmerman, Chelminski, & McDermut, 2002). MDD is also comorbid with a variety of physical disorders/illnesses, and there is often a bi-directionality between depression and a specific ongoing physical illness (Goodwin, Kroenke, Hoven, & Spitzer, 2003).

Relapse and recurrence

MDD is a highly recurrent disorder, with over 75% of patients having more than one depressive episode and often having further episodes within 2 years of recovery (Bolland & Keller, 2009). The risk of recurrence of MDD progressively increases with number of previous depressive episodes (Solomon et al., 2000). For example, having had three or more depressive episodes has been shown to significantly increase risk of recurrence (Keller, Lavori, Lewis, & Klerman, 1983), with each depressive episode increasing the recurrence risk by 16% (Solomon et al., 2000).

Research has identified other risk factors for recurrence (the emergence of a new episode) and relapse (a resurgence of the episode being treated) in depression, and these include residual depressive symptoms, severity of first episode, comorbid disorders, psychosocial impairment, an avoidant way to deal with problems, and a lower capacity to refocus on positive matters (Beshai, Dobson, Bocking, & Quigley, 2011; Solomon et al., 2004).

The high recurrence rate in depression suggests that specific factors are likely to increase individuals' risk for developing repeated depressive episodes. The next section will provide a brief overview of some of the aetiological and maintaining factors associated with depression.

2.1.2 Aetiology and maintenance

Depression is a biopsychosocial disorder that has a multifactorial causality, whereby multiple biological, psychological and social factors interact and contribute to its onset or maintenance.

Research on vulnerability factors for depression has identified biological and environmental factors, which contribute to individuals' increased vulnerability to depression. Biological factors comprise, among others: genetic susceptibility to MDD (Levinson, 2009), and neurobiological disturbances (Thase, 2009). Environmental factors include, among others: early adverse experiences during childhood, including unresponsive, coersive, or inconsistent parenting; loss; deprived environments; and maladaptive family functioning (Goodman & Brand, 2009). The multiple biological and environmental factors contribute to increased vulnerability to depression and serve as latent variables that interact with the effects of stressful life events, leading to the onset of the disorder and its symptomatology (vulnerability-stress model). Therefore, individuals exposed to stressful life events will only develop depression if they also have increased

vulnerability. Research has provided evidence for the interaction between genetic vulnerability and stressful life events, in which individuals' responses to stressful life events are moderated by their genetic vulnerability (Caspi et al., 2003).

Research on psychosocial risk factors in depression suggests that the risk factors underlying first onset may be different from those that underlie recurrence of depression (Lewinsohn, Allen, Seeley, & Gotlib, 1999). Stressful life events were found to be a stronger predictor of first onsets of depression than of recurrent episodes, whilst dysfunctional thinking styles were found to be a stronger predictor of recurrent episodes than of first onsets (Lewinsohn et al., 1999).

The present study focuses on the role of cognitive and emotion regulation factors in the maintenance of depression and its amelioration through brief mindfulness and relaxation interventions. Therefore, the following sections will provide a brief overview of relevant cognitive and emotion regulation factors in depression.

2.1.3 Cognitive theories of depression

Cognitive theories of depression emphasise the role of cognitive factors (such as thoughts, images, memories, beliefs, attributions) in the aetiology and maintenance of depression. In particular, they suggest that depression results from maladaptive or irrational cognitions, and the affective, behavioural, and physiological symptoms of the disorder are regarded as secondary manifestations resulting from those maladaptive cognitions (Gotlib & Hammen, 1992).

A body of research has examined cognitive aspects of depression, and four main models have gathered considerable theoretical and empirical evidence. Firstly, the learned helplessness model of depression (Seligman, 1975; Abramson, Seligman, & Teasdale, 1978), which focuses on attributions of uncontrollability over future outcomes, and postulates that depressive individuals have a tendency to attribute negative events to internal, stable and global causes, and positive events to external, unstable, and specific causes (depressogenic attributional style). The model was later reformulated into the hopelessness model of depression (Abramson, Metalsky, & Alloy, 1989), which postulates that depression results from the diathesis of a depressogenic attributional style and negative life events. This in turn leads to hopelessness, whereby the individual develops the expectation that desired outcomes will not occur and undesired outcomes will.

Secondly, Beck developed a cognitive theory of depression that focused on the role of negative automatic thoughts and dysfunctional beliefs in depression (Beck, 1976). Thirdly, the differential activation hypothesis was developed to explain the

vulnerability to recurrence and relapse in depression (Teasdale, 1988). Fourthly, Nolen-Hoeksema developed a response styles theory of depression that focused on the importance of rumination in depression (Nolen-Hoeksema, 1991). The latter three models will be reviewed in the following sections due to being highly influential and relevant for the present study.

Beck's cognitive theory

The cognitive theory of depression (Beck, 1976) suggests that one of the main components of depression is the tendency to view the self, the world, and the future in a negative way (negative cognitive triad). This cognitive triad is apparent through the cognitive distortions that depressed individuals demonstrate, and results from biased information processing. Negative schemas (cognitive structures through which events are processed) are responsible for this biased information processing, by influencing the selection, organisation, and evaluation of stimuli in the environment in a biased and negative way, and leading to negative affect. These schemas develop from early experiences in childhood, and serve as a vulnerability factor (diathesis) for depression, becoming reactivated when the individual is exposed to relevant stressors, such as negative life events. Once schemas are activated, they lead to a variety of negative biases in perception and thought patterns (e.g., negative thinking even in the absence of supporting evidence and dismiss of positive stimuli) that eventually results in depressive disorder (Gotlib & Hammen, 1992; Joorman, 2009).

The theory has developed into a treatment programme- cognitive therapy- designed to change the content of maladaptive negative thoughts and schemas, and replace them with more adaptive and accurate ones (Beck, Rush, Shaw, & Emery, 1979).

Several components of Beck's cognitive theory have been tested and received empirical support, in particular the claims that depressive thinking is associated with increased negative cognitions about the self, the world and others (Haaga, Dyck, & Ernst, 1991), and the cognitive diathesis component of the model whereby negative cognitive factors are activated by stressful events, resulting in increased cognitive vulnerability for the onset or relapse of depression (Scher, Ingram, & Segal, 2005). Moreover, cognitive therapy for depression has been extensively studied and empirically validated (Garratt, Ingram, Rand, & Sawalani, 2007). Cognitive therapy (Beck et al., 1979) has been found to be more effective than waiting list or placebo controls and equally effective as antidepressant medication

for the initial treatment of moderate to severe depression. Furthermore, cognitive therapy has been shown to have an enduring effect that extended beyond the end of treatment and was equivalent of keeping patients on antidepressant medication (Butler, Chapman, Forman, & Beck, 2006).

Differential activation hypothesis

Several studies have supported the suggestion that cognitive factors, such as dysfunctional thinking, increase vulnerability to severe and persistent depression (Hankin, Abramson, Miller, & Haeffel, 2004). These patterns of dysfunctional thinking do not occur exclusively during depressive episodes. In individuals who have experienced previous depressive episodes, dysfunctional thinking can be easily reactivated during times of recovery. For example, Miranda, Persons, and Byers (1990) found a positive association between dysfunctional thinking and sad mood among formerly depressed patients induced to a sad mood, but not among never-depressed controls experiencing similar levels of sadness. This line of research led to the suggestion that a residual form of *cognitive reactivity* is present in formerly depressed patients, and increases vulnerability to relapse. This cognitive vulnerability model to depressive relapse was denominated the *differential activation hypothesis* (DAH) (Teasdale, 1988). The DAH suggests that vulnerability to relapse and recurrence in depression results from repeated associations between depressed mood and negative thinking styles during episodes of depression. Therefore, in individuals who had previous episodes of depression, the thinking styles activated by mild dysphoria are similar to the ones experienced during the depressive episode. These negative thinking styles, reactivated by mild dysphoria among recovered depressed individuals, are then likely to intensify the dysphoric mood. Consequently, among individuals with previous depressive episodes, mild dysphoric mood is more likely to progress to more intense depressive mood, thus increasing risk of recurrence or relapse (Segal, Williams, & Teasdale, 2002).

Over time the role of stressful external contributions to depression, such as negative life events, becomes less important, and conversely minor fluctuations in mood can activate negative patterns of thinking, further exacerbating the negative mood and increasing the likelihood of recurrence or relapse. There is some empirical evidence that supports the association between increased cognitive reactivity and risk for recurrence or relapse in depression (Lau, Segal, & Williams, 2004; Segal, Gemar, & Williams, 1999).

Response styles theory

The response styles theory (RST) of depression (Nolen-Hoeksema, 1991) proposes that the ways in which individuals respond to their depressed mood influence the course of their mood. Specifically, the theory proposes that individuals who are in a depressed mood and engage in rumination as a response to their mood will experience longer and more severe episodes of depression.

According to the RST, rumination is a detrimental response to negative mood that prolongs and intensifies depressed mood, maintains a current depressive episode, and increases the likelihood of a new or recurrent depressive episode (Nolen-Hoeksema, 1991, 2000). Several studies have provided empirical evidence for the RST and have shown that ruminative behaviours (e.g., self and symptom-focused thoughts and behaviours) increase the duration and severity of depressive symptoms, whereas distractive behaviours (e.g., attention directed towards neutral thoughts and activities) decrease the duration and severity of depressive symptoms (Morrow & Nolen-Hoeksema, 1990; Nolen-Hoeksema & Morrow, 1993; Nolen-Hoeksema, Morrow, & Fredrickson, 1993; Vickers & Vogeltanzs-Holm, 2003).

Cross sectional studies on rumination and depression have either examined the association between rumination and depression in healthy controls, or used group comparisons where depressed and healthy controls are compared on rumination, or high rumination and low rumination scorers are compared on depression. Results from these studies have shown a positive association between rumination and depression (Thomsen, 2006). However, it is not possible to draw causal conclusions about the effect of rumination on depression from correlational studies. Moreover, correlations between rumination and negative affect are typically moderate (Thomsen, 2006), suggesting that some individuals might score high on rumination, but do not necessarily experience negative affect, which indicates they may be protected by other factors, such as high social support.

Longitudinal studies have further shown that a ruminative response style at baseline predicted changes in depressive symptoms at follow-up, even after controlling for baseline depressive symptoms (Nolan, Roberts, & Gotlib, 1998; Nolen-Hoeksema & Morrow, 1991). Moreover, rumination was shown to predict new onsets of depressive episodes (Nolen-Hoeksema, 2000). This effect has been shown to generalise to clinically depressed patients, with rumination predicting future levels of depression, independently of initial levels of depression (Kuehner &

Weber, 1999). The above studies have a range of limitations, including a brief prospective interval (Nolan et al., 1998), small effect sizes for the impact of rumination on depression (Nolen-Hoeksema, 2000), and a small sample size (Kuehner & Weber, 1999). Moreover, the non-randomised design of the above longitudinal studies means that conclusions about the causal role of rumination in depression remain tentative.

Experimental studies on rumination and depressed mood have commonly used a repeated-measures method where rumination and distraction manipulations are compared and mood is measured before and after this experimental manipulation. Half of the participants are either induced into a sad mood or recruited as already depressed. The sad/depressed and non-sad/depressed groups are then randomly assigned to either a rumination task or a distraction task, and mood is measured. Results support that rumination increases depressed mood in sad/depressed participants, but not in non-sad/depressed participants, while distraction decreases depressed mood in sad/depressed participants, but has no effect on mood in non-sad/depressed participants (Nolen-Hoeksema, 2000; Thomsen, 2006).

Based on the findings that rumination predicts the onset, severity, and duration of depression, an adapted version of CBT specifically targeted to address rumination was developed (Watkins et al., 2007). This rumination-focused cognitive behaviour therapy (RFCBT) focused on helping patients to switch from less helpful (rumination) to more helpful styles of thinking (problem solving), and has showed significant improvements in depressive symptoms, rumination and co-morbid disorders. However, the study included a small sample size and lacked a comparison/control group, and therefore further research is warranted to investigate the efficacy of RFBCT for depression.

2.1.4 Clinical features contributing to the maintenance of depression

Rumination

Rumination is the tendency to focus attention on one's symptoms of distress, and the possible causes and consequences of these symptoms. The content of ruminative thinking in depression is often negative in valence. However, what characterises rumination and differentiates it from negative thoughts is that it is a *style* of thought that has a passive and repetitive nature, rather than just negative content (Nolen-Hoeksema, 1991).

Rumination is involved in the aetiology and maintenance of depression, and has been hypothesised to contribute to depression through four crucial ways: (1) by

increasing the activation of negative thoughts and memories, and increasing the likelihood of individuals making negative appraisals of situations (Nolen-Hoeksema, Wisco, & Lyubomirsky, 2008); (2) by decreasing individuals' ability to concentrate and engage in instrumental behaviour (Lyubomirsky, Kasri, & Zehm, 2003; Ward, Lyubomirsky, Sousa, & Nolen-Hoeksema, 2003); (3) by contributing to impaired problem solving, and thus impeding the implementation of successful strategies to overcome negative mood (Watkins & Baraccia, 2002); and (4) by alienating potential social support, which may result in lack of support or social isolation (Nolen-Hoeksema & Davis, 1999).

Recent conceptualisations of rumination have proposed that it can be a form of avoidance, as it prevents individuals from actively engaging in activities within the environment (behavioural avoidance), thus decreasing their likelihood of obtaining external reinforcement, and contributing to low mood (Nolen-Hoeksema et al., 2008). In addition, rumination has been conceptualised as a form of suppressing distressing thoughts and feelings (cognitive and emotional avoidance). However, suppression often has the unwanted effect of increasing availability of those distressing thoughts and feelings, further reinforcing a depressed mood (Nolen-Hoeksema et al., 2008). Conversely, engaging in distractive tasks has been hypothesised to reduce depressed mood by preventing individuals from focusing on negative thoughts and feelings, and to increase opportunities for positive reinforcement through engagement in pleasant or benign thoughts and activities (Nolen-Hoeksema et al., 2008).

Avoidance

Avoidance has been described as a maladaptive form of emotion regulation characterised by avoidance of distressing situations, thoughts, memories, or physical sensations (Hayes, Wilson, Gifford, Follette, & Strosahl, 1996). Three forms of avoidance have been conceptualised: behavioural avoidance (similar to behavioural withdrawal); cognitive avoidance (similar to thought suppression) and experiential avoidance (avoidance of unwanted internal events). Avoidance has been argued to be maladaptive, and central to the maintenance of depression, because it prevents individuals from effectively responding to internal or external stimuli, and has the paradoxical effect of increasing the avoided material. Wenzlaff and Luxton (2003) have demonstrated that efforts to avoid unpleasant thoughts in the face of stressors led to increases in these thoughts and to more subsequent rumination and low mood.

There is consistent evidence suggesting that avoidance is a central mechanism in depression. Avoidance has been suggested to limit positive experiences and reinforcement for non-depressed behaviour, thus contributing to the onset and maintenance of depression. In addition, avoidance has been argued to play a role in negative information processing biases that may increase vulnerability to the onset and recurrence of depression (Trew, 2011). In a cross-sectional study, Moulds, Kandris, Starr, and Wong (2007) examined the association among avoidance, rumination and depression, and found significant associations among cognitive and behavioural avoidance, rumination, and depressive symptoms. These findings were extended by Dickson, Ciesla, and Reilly (2012) who also examined the relationship among avoidance, rumination, and depressive symptoms using a prospective design. The study showed that increases in depressed mood were predicted by greater daily rumination and cognitive avoidance, and that daily rumination was predicted by cognitive avoidance. Meditation analyses suggested that rumination mediated the effect of cognitive avoidance on low mood, which further supports the relationship between avoidance processes and depression (Dickson et al., 2012).

A recent meta-analysis supported a medium to large relationship between avoidance and depression that was stronger in clinical samples (Aldao, Nolen-Hoeksema, & Schweizer, 2010).

In summary, both rumination and avoidance have been conceptualised as maintaining mechanisms in depression. Empirical research has supported the Response Styles Theory by providing evidence for the role of rumination in exacerbating depression, enhancing negative thinking, interfering with instrumental behaviour, impairing problem solving, and alienating social support (Nolen-Hoeksema, 2000). Experimental research has shown that inducing rumination increases depressed mood in depressed individuals, whereas inducing distraction decreases depressed mood in depressed individuals. This suggests a causal role of rumination in depression that is dependent on the individual being already in a depressed mood.

Despite the body of evidence, there are still several gaps in the knowledge about rumination and its contribution to depression. Questions relevant to the current thesis include understanding how depressed individuals can learn to disengage from rumination when, for example, they experience negative automatic thoughts,

and identifying effective strategies to combat rumination among depressed individuals.

2.1.5 Treatment of depression

In the UK, the NICE guidelines (NICE, 2009) recommend using a stepped-care model in the treatment of adults with depression, whereby service users are treated at the lowest appropriate service tier in the first instance, only 'stepping up' to more intensive or specialist services as clinically required. The stepped-cared model for depression is shown in Figure 1.

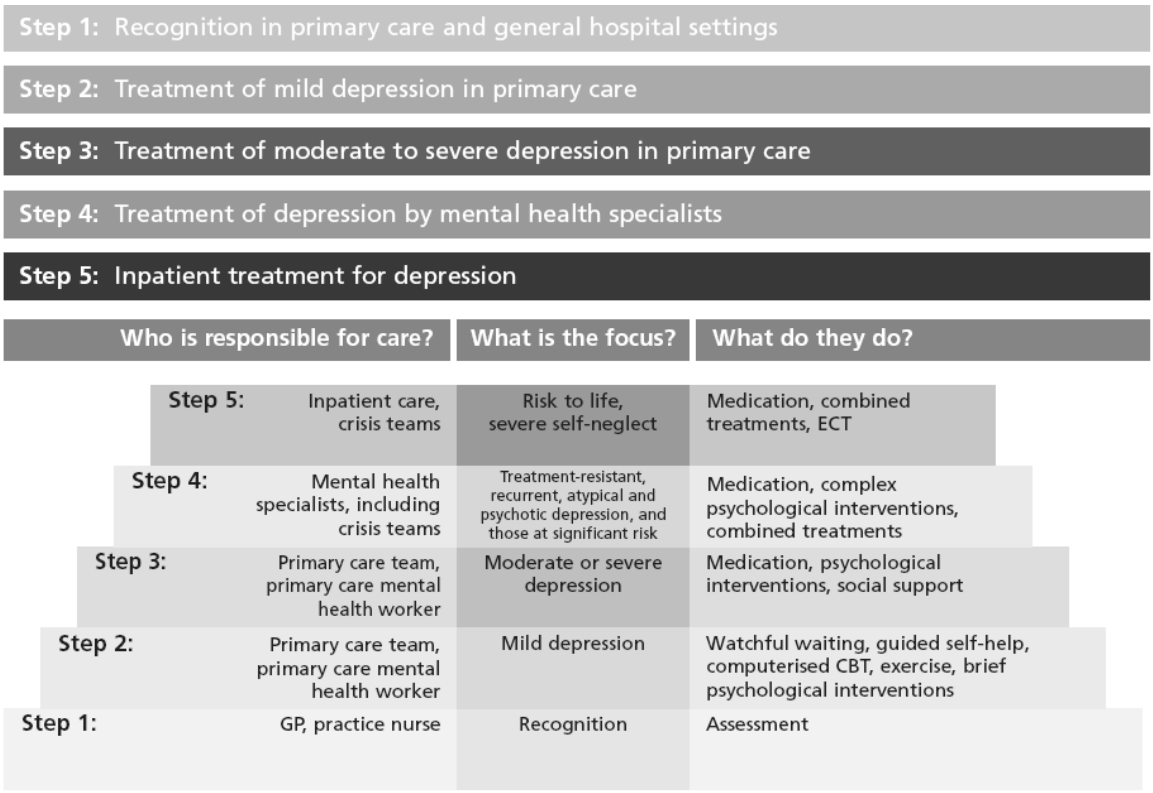


Figure 1- Stepped care model for depression (NICE, 2009)

According to NICE (2009), all patients should be offered an assessment/screening that focuses on their presenting problem, and includes a risk assessment and referral to the appropriate service depending on their needs (step 1). Patients presenting with mild to moderate depression, are offered guided self-help and computerised CBT, and a structured group physical activity programme (step 2). Patients presenting with moderate or severe depression are offered high intensity psychological interventions (CBT or Interpersonal Therapy), antidepressant

medication or a combination (step 3). Both steps 2 and 3 are provided within primary care by the Improving Access to Psychological Therapies (IAPT) [2] services. Patients with complex and severe depression are referred to specialist mental health services who develop comprehensive multidisciplinary care plans in collaboration with the patient (step 4); and inpatient care is considered when there is a significant risk of suicide, self-harm, or self-neglect (step 5).

All participants recruited for the current study were on the waiting list of IAPT services to receive psychological therapy (see Method section), and therefore were likely to be at step 3 on the stepped care model.

NICE (2009) also makes recommendations regarding psychological interventions for relapse prevention in depression, and these include individual CBT for patients with a history of depression and residual symptoms, and mindfulness-based cognitive therapy (MBCT) for remitted depressed patients who have experienced three or more previous episodes of depression. Mindfulness-based interventions and their efficacy in the treatment of depression will be reviewed in the next section.

2.1.6 Interim conclusion

Depression is a common mental health problem, and a range of biological, social, and psychological factors contribute to its aetiology and maintenance. Treatment of depression in the UK is provided using a stepped-care model, with the majority of patients being treated within primary care settings, particularly at IAPT services.

Depression has a high risk of relapse and recurrence. Research has suggested that, in recovered depressed individuals, depressed mood is likely to reactivate thinking styles associated with previous depressed mood.

This tendency to react to small changes in mood with large changes in negative thinking (cognitive reactivity) has been assumed to contribute to an increased risk of recurrence following each subsequent episode (Segal et al., 2002). Conversely, with repeated experiences of depressive episodes, less environmental stress is required to cause a relapse (Lau et al., 2004).

Recent studies suggest that risk of relapse or recurrence in depression will be reduced if individuals learn to be more aware of negative thoughts and feelings, and to disengage from rumination associated with those thoughts and feelings

[2] IAPT is an NHS programme with services across England offering psychological interventions approved by NICE for the treatment of depression and anxiety disorders.

(Teasdale et al., 2000), and this has provided the theoretical rationale motivating the use of mindfulness and mindfulness-based interventions in depression.

The following sections will provide an overview of mindfulness and its clinical application in the treatment of depression.

2.2 Mindfulness

2.2.1 Definition

Mindfulness has been defined as the awareness that arises through "paying attention in a particular way: on purpose, in the present moment, and non-judgmentally" (Kabat-Zinn, 1994, p. 4). Other similar descriptions of mindfulness have emphasised "the non-judgmental observation of the ongoing stream of internal and external stimuli as they arise" (Baer, 2003, p. 125).

Mindfulness has its origins in Buddhist tradition, and has been adopted in psychology as an approach to respond adaptively to mental events that contribute to emotional distress. The basic premise underlying mindfulness practice is that the experience of the present moment in a non-judgemental and purposeful way can effectively counter the effects of negative thoughts about the past and the future, which tend to occur in depression (Hoffman, Sawyer, Witt, & Oh, 2010). Therefore, mindfulness can be conceptualised as a form of *mental training* to reduce vulnerability to modes of reacting contributing to increased emotional distress or perpetuating existing psychopathology.

The formal practice of mindfulness is often as a sitting meditation where the individual is encouraged to focus attention on a particular meditation object, most commonly the somatic sensations of breathing. Whenever the mind wanders and thoughts and feelings arise, the individual is encouraged to take notice of them and let them go, whilst returning attention to the breath. This process is repeated each time attention wanders away from the breath (Williams, Teasdale, Segal, & Kabat-Zinn, 2012). An informal mindfulness practice entails using the same general approach by bringing awareness to the present moment during the course of the day and using the breath as an anchor.

2.2.2 Mindfulness and psychological health

Mindfulness has been incorporated into several interventions, either as a sole or core component of the intervention. There are four main interventions that include mindfulness as a key component, and these include: (1) Mindfulness-Based Stress Reduction (MBSR; Kabat-Zinn, 1982, 1990), which was developed for individuals

with a wide range of chronic pain and stress-related disorders, and aims to help them relate to their physical and psychological problems in a less reactive and judgemental way; (2) Mindfulness-Based Cognitive Therapy (MBCT; Segal et al., 2002), which was initially developed as a treatment to prevent relapse in remitted depression and combines elements of CBT for depression with mindfulness meditation. In MBCT individuals are encouraged to observe their thoughts and feelings without emotionally reacting to them, in addition to practicing standard cognitive techniques; (3) Dialectical Behavioural Therapy (DBT; Linehan, 1993), which was developed as a treatment for patients with borderline personality disorder who experience suicidal ideation and engage in self-harm behaviours. In DBT, mindfulness skills are taught as a way of helping patients to increase self-acceptance and to reduce emotional avoidance; and (4) Acceptance and Commitment Therapy (ACT; Hayes, Strosahl, & Wilson, 1999), which aims to help individuals increase present-moment awareness and acceptance and, although it does not include formal mindfulness exercises, its focus is consistent with other mindfulness-based treatments.

A body of research has examined the effects of mindfulness on psychological health and has suggested that mindfulness training is associated with positive psychological effects, including increased subjective well-being and positive emotional states, reduced mood disturbance and stress, improved regulation of behaviour, lower levels of rumination, avoidance and perfectionism (Brown & Ryan, 2003; Keng, Smoski, & Robins, 2011; Williams, 2008).

2.2.3 Mindfulness and depression

There has been a surge in research studies examining the effects of mindfulness-based interventions (MBI) in depression. The aim of these interventions is to help patients to become more aware of and relate differently to their thoughts, feelings, and body sensations. Through mindfulness practice, patients are encouraged to recognise and accept discomfort from negative emotions, to detach from negative thoughts, and to disengage from dysfunctional cognitive processes such as rumination, by redirecting their attention to the present moment. Several mechanisms of therapeutic change associated with MBI have received empirical support, particularly the negative association between mindfulness and negative automatic thoughts, and the positive association between mindfulness practice and letting-go of these thoughts (Frewen, Evans, Maraj, Dozois, & Partridge, 2008).

Empirical research on the effectiveness of MBI for depression has greatly increased in the last decade, and a brief overview of this research will be provided in the next section.

Empirical evidence on mindfulness and depression

Cross-sectional studies

Research has shown significant negative correlations between mindfulness and depression (Cash & Whittingham, 2010; Kumar, Feldman, & Hayes, 2008), and between mindfulness and other concepts associated with depression, such as rumination (Raes & Williams, 2010; Kumar et al., 2008) and cognitive reactivity (Raes, Dewulf, Van Heeringen, & Williams, 2009).

Another way to examine the effects of mindfulness on depression is by comparing experienced meditators and non-meditators on indices of depression. Lykins and Baer (2009) found that, in contrast with non-meditators, meditators reported significantly lower levels of depressive symptoms and rumination, and significantly higher levels of mindfulness, self-compassion, and overall sense of well-being. Moreover, changes in these variables were associated with the extent of meditation practice. Because of the cross-sectional and non-randomised design of the above studies, it is not possible to take valid conclusions about the effect of mindfulness on depressive symptoms. The next section will review the empirical evidence pertaining to longitudinal research with a focus on randomised control trials regarding the effectiveness of mindfulness interventions on depression.

Longitudinal studies and randomised controlled trials

Longitudinal research on the effects of mindfulness training on depression has tested individuals before and after mindfulness training and has shown that, compared to a waiting list control group, those completing a 10-day training had significantly lower levels of depressive symptoms, reflective rumination, and negative affect (Chambers, Lo, & Allen, 2008).

Three randomised controlled trials (RCTs) suggest that MBCT, compared to treatment as usual (TAU), leads to reduced risk of relapse by approximately half in patients with three or more previous episodes of depression (Godfrin & van Heeringen, 2010; Ma & Teasdale, 2004; Teasdale et al., 2000). Furthermore, participants in the MBCT group had a significantly longer mean time to first relapse than their TAU counterparts (Godfrin & van Heeringen, 2010). Another RCT showed that MBCT was as effective in reducing relapse as maintenance

antidepressant medication, but produced significantly better outcome in terms of self-reported and observer-rated depressive symptoms over a follow-up period of 15 months (Kuyken et al., 2008). Further evidence for the effectiveness of MBCT in reducing the risk of relapse and recurrence in depression was provided by a recent meta-analysis showing that, compared with TAU or placebo controls, MBCT significantly reduced the risk of relapse by 34% and, among patients with three or more previous depressive episodes, the risk reduction was 43% (Piet & Hougaard, 2011).

The aforementioned studies investigated the effects of MBCT in patients who were in remission or recovery. However, recent studies suggest that MBCT can successfully reduce symptoms in patients with *current* depression (Finucane & Mercer, 2006; Kenny & Williams, 2007; Kingston, Dooley, Bates, Lawlor, & Malone, 2007). The study by Kingston et al. (2007) only included participants with residual depressive symptoms and although it included a control group, participants were not randomly assigned to the two treatment conditions, while the studies by Finucane and Mercer (2006) and Kenny and Williams (2007) were based on uncontrolled pre-post comparisons, thus compromising the validity of the results. One study that overcomes these limitations is by Barnhofer and colleagues (Barnhofer et al., 2009), who used a randomised controlled design to investigate the effectiveness of MBCT in currently depressed patients with at least three previous episodes of depression, and found that pre to post symptoms of depression decreased in the MBCT group, while there was no change in the TAU group.

2.2.4 Mindfulness correlates and mechanisms of change

An important step in understanding the processes that underlie the therapeutic benefits of mindfulness-based interventions is to identify mechanism variables that correlate with treatment outcome or mediate its effects. The next section will review some of the mindfulness correlates and mechanisms of change.

Attention control

Attention control has been suggested to be one of the core mechanisms of mindfulness, as the practice requires the ability to focus and sustain one's attention and a reduced proneness to distraction. Based on this premise, researchers have developed models of mindfulness that include attention as one of their main components. For example, Bishop and colleagues (Bishop et al., 2004) proposed a

two-component model of mindfulness which involves: (1) the self-regulation of attention, which refers to the observation and awareness of thoughts, feelings, and body sensations as they occur in the present moment; and (2) the adoption of a particular orientation towards one's experiences, an orientation that is characterised by an attitude of curiosity, openness, and acceptance. According to this model, skills in *sustained attention* are required to maintain an awareness of current experience. In addition, skills in *switching attention* enable individuals to bring their attention back to the breath whenever a thought, feeling or sensation arises. Therefore, one prediction of this model is that mindfulness practice would be associated with increased attention control (both sustained and switching attention).

Research has supported the assertion that mindfulness practice may contribute to attention control improvements (Chambers et al., 2008; Jensen, Vangkilde, Frokjaer, & Hasselbalch, 2012; Malinowski, 2013; Moore & Malinowski, 2009).

Meta-cognitive awareness

Meta-cognitive awareness has been described as a cognitive set in which negative thoughts and feelings are perceived as passing events in the mind, rather than as inherent aspects of the self or valid reflections of reality (Teasdale et al., 2002). Mindfulness training has been hypothesised to increase meta-cognitive awareness by encouraging patients to attend to these thoughts and feelings, and to perceive them as passing events (for example, patients are provided with metaphors to help them develop a decentered perspective, such as the suggestion to view thoughts as clouds floating in the sky).

Meta-cognitive awareness has been hypothesised to be one of the primary mechanisms of therapeutic change in depression. Research studies have examined how the ability to experience thoughts and feelings from a decentered perspective (meta-cognitive awareness) relates to risk of depression relapse, and these studies have shown that lower levels of meta-cognitive awareness predicted depression relapse among partially remitted depressed patients (Teasdale et al., 2002), and conversely higher levels of decentering were associated with a lowered risk of depressive relapse (Fresco, Segal, Buis, & Kennedy, 2007).

Research has examined the effects of mindfulness on meta-cognitive awareness, and it was shown that depressed patients who received MBCT, compared with those receiving TAU, showed increased levels of meta-cognitive awareness (Hargus, Crane, Barnhofer, & Williams, 2010). Moreover, the fact that the effects

were unrelated to change in depressive symptoms suggested that mindfulness may contribute to increase the capacity of meta-cognitive awareness. Meta-cognitive awareness was also examined in a study by Frewen and colleagues (Frewen et al., 2008), who found that mindfulness practice resulted in decreases in both the frequency and difficulty of letting go of negative thoughts.

Emotional regulation

Emotional regulation refers to the process of modulating one or more aspects of an emotional experience. It can involve attempts to control emotional experience (e.g., avoidance of emotions), and difficulties in regulating and tolerating that experience (Chambers, Gullone, & Allen, 2009).

Mindfulness training has been suggested to be associated with increased ability to tolerate negative emotions and with reduced emotional reactivity. The development of a stance of openness and acceptance towards one's experiences, particularly painful or unpleasant thoughts and feelings, was hypothesised to result in reduced emotional distress and increased emotional tolerance (Bishop et al., 2004). There is evidence to support the association between mindfulness, increased emotional tolerance and reduced emotional reactivity. Arch and Craske (2006) examined the effects of a 15-min focused breathing induction on emotional tolerance during a slide-viewing task and found that, compared with participants in the unfocused attention and worrying conditions, participants in the mindfulness/focused attention condition were more willing to view negative slides, and reported less emotional volatility and negative reactivity during the task. These results were extended by Ortner, Kilner and Zelazo (2007), who conducted a randomised experimental study, and found that individuals who participated in a mindfulness training course had lower emotional reactivity at post-treatment than individuals in a relaxation course or those in a waitlist control.

Psychometric research has provided further evidence for the relationship between mindfulness and emotional regulation, by showing negative associations between several mindfulness measures and difficulties in emotion regulation (Baer, Smith, Hopkins, Krietemeyer, & Toney, 2006).

There is also evidence that mindfulness training is associated with decreases in maladaptive emotion regulation strategies, such as rumination and avoidance. In a correlational study, Raes and Williams (2010) found that mindfulness was negatively correlated with rumination uncontrollability. Rumination was also found to significantly decrease following mindfulness training (Chambers et al., 2008;

Kumar et al., 2008), and at post-treatment greater improvement in mindfulness was significantly associated with concurrent decreases in rumination and avoidance (Kumar et al., 2008).

There is evidence suggesting that the effects of MBCT on depressive symptoms may be facilitated by decreased rumination. Shahar, Britton, Sbarra, Figueredo, and Bootzin (2010) examined changes in rumination following an 8-week MBCT course, and found that reductions in brooding (an aspect of rumination) accounted for the effects of MBCT on reductions in depressive symptoms.

Self-compassion

Self-compassion has been described as feelings of caring towards oneself, and it entails three main components: (1) kindness and understanding to oneself (as opposed to self-criticism); (2) perceiving one's experiences as part of the human experience; and (3) awareness of painful thoughts and feelings without over-identifying with them (Neff, 2003). Self-compassion and mindfulness are intrinsically associated, as mindful awareness of one's experience of suffering is necessary to develop compassion towards the self. Moreover, a non-judgemental and acceptant stance, which is fostered in mindfulness practice, is also important in self-compassion. However, mindfulness aims to increase awareness of all experiences (body sensations, thoughts, emotions, etc.), while the focus of self-compassion is to increase awareness of one's suffering (Birnie, Speca, & Carlson, 2010).

Research has shown that self-compassion is associated with psychological functioning (Hollis-Walker & Colosimo, 2011; Neff, Rude, Kirkpatrick, 2007), and negatively predicts severity of depressive symptoms (Van Dam, Sheppard, Forsyth, & Earleywine, 2011). Furthermore, mindfulness interventions, such as MBSR, have been shown to lead to increases in self-compassion, as well as in mindfulness skills (Birnie et al., 2010; Shapiro, Astin, Bishop, & Cordova, 2005).

Recent mediational studies have suggested that the effects of MBCT on depression may be mediated or facilitated by increased self-compassion (Kuyken et al., 2010).

In addition to mindfulness skills, the current study will use measures of attentional control, meta-cognitive awareness (decentering), self-compassion, and emotional regulation to examine whether these variables are associated with, or potentially predict, changes in depressive symptoms.

2.2.5 Interim conclusion

There is consistent evidence for the potential benefits of mindfulness-based interventions (MBI) in depression. However, current empirical studies of MBI have several methodological limitations, including their reliance on TAU or waitlist control comparisons, which does not elucidate about active ingredients of mindfulness interventions. Attempts have been made to validate active control interventions that match MBI (e.g., MacCoon et al., 2012), but there are very few studies comparing the effects of MBI and an active control intervention for depression.

The current study is an experimental study that will use an active control intervention- relaxation training using guided visual imagery. Therefore, one of the aims of the study is to overcome previous studies' limitations by examining the relative efficacy of a mindfulness intervention.

2.3 Relaxation and guided visual imagery

Guided visual imagery (GVI) is a relaxation technique that uses the description of calming or pleasant mental images to aid the relaxation process. The individual is encouraged to visualise mental images described through the use of a script (audio or written).

Relaxation has been shown as an effective treatment at reducing depressive symptoms compared to waitlist and no treatment (Jorm, Morgan, & Hetrick, 2008). However, little is known about the relative efficacy of mindfulness interventions compared with relaxation interventions. One of the few controlled studies examining the effects of mindfulness and relaxation interventions on psychological distress (Jain et al., 2007) showed that, compared with a no-treatment control, a 1-month training on mindfulness or relaxation reduced distress and improved positive mood states, and there were no significant differences between the two active interventions on distress and positive mood states. The mindfulness group, however, showed significantly less ruminative and distractive thoughts and behaviours than the control and relaxation groups at post-intervention, whereas the relaxation group did not significantly differ from the control group on either distraction or rumination (Jain et al., 2007).

Previous research has demonstrated that even short periods of meditation training, as compared with relaxation training, can have significant effects on cognitive and brain functioning (Tang et al., 2007; Tang et al., 2009; Tang et al., 2010). In a study

by Tang and colleagues (Tang et al., 2007), 80 undergraduate students were randomly assigned to 5 days (20 min/day) of either meditation practice or relaxation training. Compared with the relaxation control group, the meditation group showed significantly greater attention and control of stress, and lower anxiety, depression and anger.

2.4 Current study: Aims and hypothesis

The current study aimed to investigate the effects of a *brief* mindfulness training in depression by comparing its effects against relaxation training. In addition to a number of practical advantages, including ease of delivery, reduced burden to patient, patient's acceptability of, and adherence to treatment, this will allow us to investigate the effects of mindfulness training more specifically. The first aim of the study was to investigate the effect of mindfulness training and relaxation on depressive symptoms. Based on the literature regarding the positive impact of distractive behaviours on depressive symptoms, it was theorised that both mindfulness and relaxation could serve as distractive behaviours, as they both require sustained attention focus on stimuli (e.g., the breath in mindfulness, visual images in relaxation), thus reducing rumination. However, we expected the effect of mindfulness to be stronger as the intervention provides patients with more flexible means to disengage from ruminative thinking.

Hypothesis 1 therefore stated that both interventions would reduce depressive symptoms, with mindfulness showing greater reduction.

A second aim of the study was to explore the relationship between treatment-related changes in depressive symptoms and changes in cognitive functioning during the active treatment and follow-up stages. This aim was exploratory - to examine which factors contributed to changes in depressive symptoms, independently of intervention received. As part of these analyses, we conducted an exploratory mediation analysis in order to investigate whether changes in rumination mediated the effects of the treatments on depression. This was based on the assumption that mindfulness might exert stronger effects on symptoms due to its increased capacity to reduce rumination.

3.0 Method

3.1 Participants

Forty people participated in the study. Inclusion criteria were: (1) Current diagnosis of depression as indicated by the Structured Clinical Interview for DSM-IV-TR Axis I (SCID-I); (2) Severity of self-reported symptoms of depression on a clinical level as indicated by scores on the Beck Depression Inventory-II (BDI-II) above 14; (3) Age between 18 and 65. Exclusion criteria were: (1) self-report high risk of suicide, history of psychosis, mania, recent self-harm, current eating disorder, OCD, substance abuse or dependence that would considerably interfere with the ability to engage in meditation; (2) Currently in individual or group psychotherapy at a frequency of more than once a month; (3) Current ongoing meditation practice; (4) Change in antidepressant medication within the four weeks prior to their enrolment in the study.

Participants were recruited from waitlists of Improving Access to Psychological Therapies (IAPT) services across Lambeth, Southwark, and Croydon. 140 individuals were contacted over the telephone and screened to ascertain their eligibility for the study. From those, 40 participants met study criteria and gave consent. Twenty participants were randomly allocated to a mindfulness intervention, and 20 were randomly allocated to an active control intervention-relaxation (see consort diagram, Figure 2).

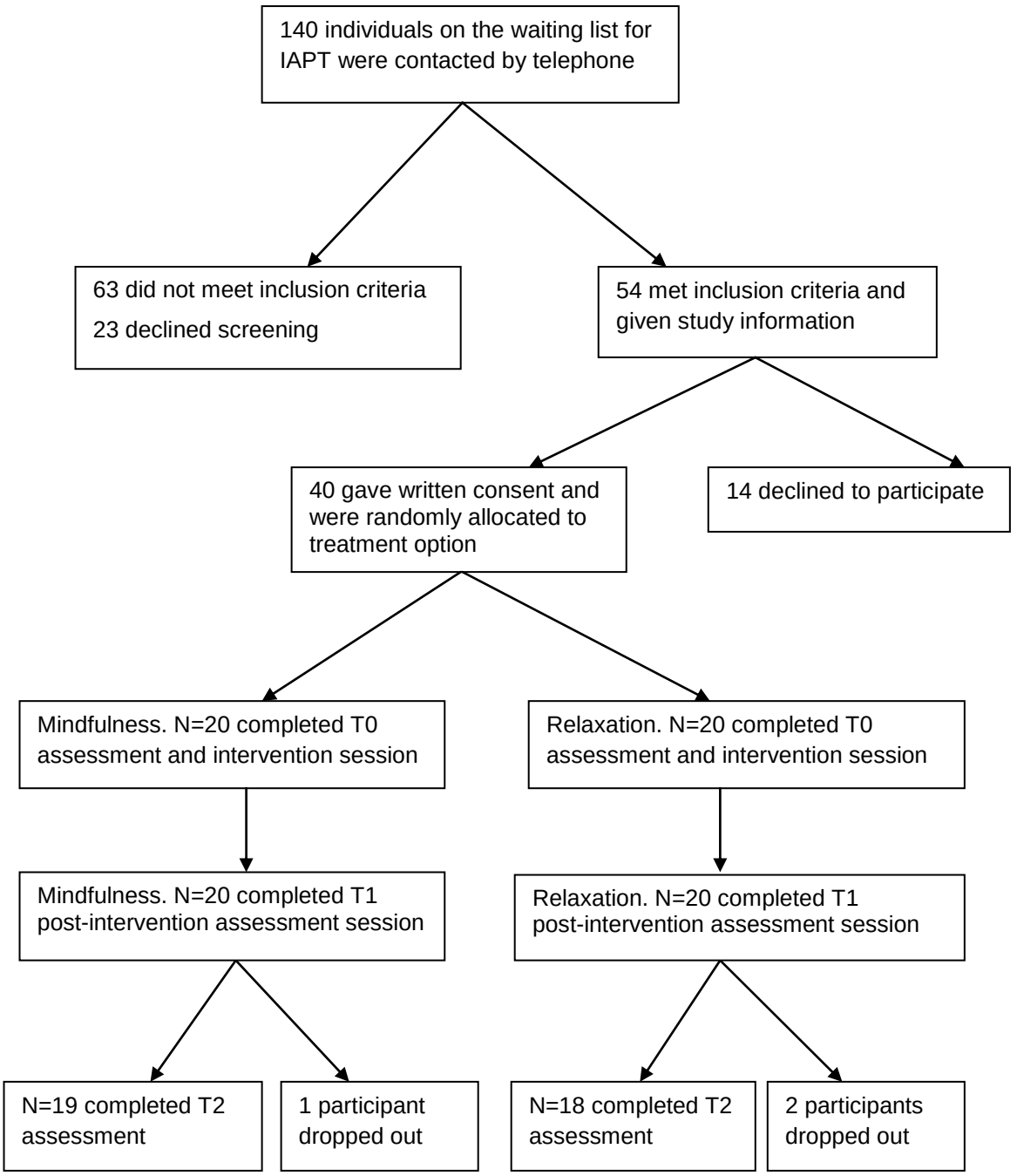
3.1.1 Randomisation

Randomisation was made using 40 closed envelopes each containing a piece of paper with either Mindfulness or Relaxation written on it. After participants completed the measures, the researcher picked one envelope and allocated the participant to the assigned intervention.

3.1.2 Ethics

The study had ethical approval from the Institute of Psychiatry and South London and Maudsley NHS Ethics Committee (REC reference: 12/LO/1952) (please see appendix A). All participants were given a Participant Information Sheet detailing what the study entailed and provided written informed consent (please see appendix B). They were reimbursed £20 for their time and travel expenses.

Figure 2- Consort diagram for inclusion in the study



3.1.3 Sample characteristics

The mindfulness and the relaxation groups were comparable in terms of age, gender, marital status, ethnicity, and education. See Table 1 for an overview of the socio-demographic sample characteristics.

Table 1- Participant socio-demographics of the mindfulness and relaxation groups

	Mindfulness (*n*= 20)	**Relaxation (*n*= 20)**	**Comparison**
Age: *M (SD)*	38.75 (11.80)	38.25 (9.73)	t = .15
range	(22-62)	(27-60)	df= 38
			p= .89
Gender: *n* (%)			
Female	14 (70%)	14 (70%)	χ^2 = .00
Males	6 (30%)	6 (30%)	df = 1
			p = 1.00
Marital status: *n* (%)			
Single	13 (65%)	8 (40%)	χ^2 = 2.51
Married/Cohabiting	4 (20%)	7 (35%)	df = 2
Separated/Divorced	3 (15%)	5 (25%)	p = .40
Ethnicity: *n* (%)			
White	15 (75%)	12 (60%)	χ^2 = 4.87
Black/Black British	3 (15%)	8 (40%)	df = 2
Mixed	2 (10%)	0 (0%)	p = .07
Education achieved: *n* (%)			
Secondary	6 (30%)	7 (35%)	χ^2 = 4.86
Tertiary	14 (70%)	13 (65%)	df = 2
BA/BSc	12 (60%)	6 (30%)	p = .09
Post-grad (Masters/PhD)	2 (10%)	7 (35%)	

3.2 Design

The current study has an experimental mixed design with a between-subjects variable (Mindfulness group versus Relaxation group) and a within-subject variable (pre-intervention/Time 0 versus post-intervention/Time 1 versus follow-up/Time 2). All participants completed measures of depression, anxiety, mindfulness, rumination, self-compassion, decentering, emotion regulation, attention control,

and attention shifting before (Time 0) and after the intervention (Time 1). The same measures (excluding a cognitive task) were repeated at follow-up (Time 2). T0 and T1, and T1 and T2 were one week apart, therefore T0 and T2 were two weeks apart. All participants were asked to practise the intervention between T0 and T1, and to record the amount of time they practised it.

T0 and T1 assessments were conducted face-to-face, while follow-up was conducted via email or post. T0 lasted approximately 1h30 to 2h and included the administration of the measures (questionnaires and cognitive task) and the intervention (introducing and practising mindfulness or relaxation); T1 lasted approximately 45 minutes and it included the administration of the measures, and feedback on the practice of the intervention; the follow-up (T2) included the completion of questionnaires only.

3.3 Measures

3.3.1 Interviews and questionnaires

General information questionnaire. A self-designed questionnaire was used to record socio-demographic data (including age, marital status, ethnicity, and education) (please see appendix C).

Structured Clinical Interview for DSM-IV-TR Axis I (SCID-I; First, Gibbon, Spitzer, & Williams, 2002). Current depressive disorder was determined using the Major Depression Module of the research version of the SCID-I. The clinical assessment was used to determine eligibility of participants.

Beck Depression Inventory II (BDI-II; Beck, Steer, & Brown, 1996). Severity of current symptoms of depression was measured using the BDI-II. The BDI-II contains 21 items that assess the presence and severity of depressive symptoms occurring within the previous two weeks. Each item is ranked on a 4-point scale from 0-3, and a total score ranges from 0 to 63, with higher scores indicating higher severity of depression. The BDI-II has been shown to have good psychometric properties (Richter, Werner, Heerlein, Kraus, & Sauer, 1998). Cut-off scores are 0-13 (minimal depression), 14-19 (mild depression), 20-28 (moderate depression), 29-63 (severe depression). In the current sample, the BDI-II had adequate internal consistency at pre-intervention (Cronbach's $\alpha = 0.78$) and post-intervention (Cronbach's $\alpha = 0.91$).

Generalised Anxiety Disorder Symptoms (GAD-7; Spitzer, Kroenke, Williams, & Lowe, 2006). The GAD-7 is a screening and severity measure for symptoms of generalised anxiety. It has moderately good operating characteristics for common anxiety disorders. Total scores range from 0 to 21. Scores represent: 0-5 mild anxiety; 6-10 moderate anxiety; 11-15 moderately severe anxiety; and 15-21 severe anxiety. In the current sample, the GAD-7 had good internal consistency at pre-intervention (Cronbach's α= 0.83) and post-intervention (Cronbach's α= 0.89).

Five Facet Mindfulness Questionnaire (FFMQ; Baer et al., 2006). The FFMQ assesses five components of mindfulness: observing, describing, acting with awareness, non-judging of inner experience, and non-reactivity to inner experience. Participants have to rate how often they behave in the stated manner (e.g., "When I'm walking, I deliberately notice the sensations of my body moving") in a scale from 1 (never or very rarely true) to 5 (very often or always true). Total scores range from 5 to 195 with higher scores representing greater mindfulness skills. It has been shown to have good internal consistency (Baer et al., 2006) and adequate construct validity (Baer et al., 2008). In the current sample, the FFMQ had good internal consistency at pre-intervention (Cronbach's α= 0.86) and post-intervention (Cronbach's α= 0.87).

Ruminative Response Scale of the Response Styles Questionnaire (RRS of RSQ; Nolen-Hoeksema & Morrow, 1991). The RRS was administered to assess participants' tendencies to ruminate in response to their symptoms of negative emotion. The RRS includes 22 items in response to depressed mood that are self-focused (e.g., "I think why do I always react this way?"), symptom focused (e.g., "I think about how hard it is to concentrate"), and focused on the possible consequences and causes of mood (e.g., "I think I won't be able to do my job if I don't snap out of this"), which participants rate on a scale from 1 (never) to 4 (always). Total scores range from 22 to 88 with higher scores indicating greater rumination. The RRS differentiates between two components of rumination, reflective pondering and brooding, which differentially relate to depression in terms of their predictive ability (Treynor, Gonzalez, & Nolen-Hoeksema, 2003). In the current sample, the RRS had good internal consistency at pre-intervention (Cronbach's α= 0.87) and post-intervention (Cronbach's α= 0.92).

Self-Compassion Scale Short-Form (SCS-SF; Raes, Pommier, Neff, & Van Gucht, 2011). The SCS-SF measures self-compassion and it has the following sub-scales: self-kindness, self-judgment, common humanity, isolation, mindfulness, and over-identification. Participants have to rate how often they behave in a stated manner (e.g., "When I'm going through a very hard time, I give myself the caring and tenderness I need") in a scale from 1 (almost never) to 5 (almost always). Total scores range from 12 to 60 with higher scores indicating greater self-compassion. It has been shown to have adequate psychometric properties (Raes et al., 2011). In the current sample, the SCS-SF had adequate internal consistency at pre-intervention (Cronbach's α= 0.75) and post-intervention (Cronbach's α= 0.81).

Experiences Questionnaire (EQ; Fresco et al., 2007). The EQ is a self-report measure that assesses the ability to adopt a decentered perspective. Participants are asked to rate how often they behave in the stated manner (e.g., "I can separate myself from my own thoughts and feelings") on a scale from 1 (never) to 5 (all the time). Total scores range from 11 to 55 and higher scores indicate greater decentering skills. The scale shows significant negative correlations with levels of depression, and theoretically meaningful associations with depressive rumination, experiential avoidance, and emotion regulation (Fresco et al., 2007). In the current sample, the EQ had adequate internal consistency at pre-intervention (Cronbach's α= 0.78) and post-intervention (Cronbach's α= 0.82).

Difficulties in Emotion Regulation Scale (DERS; Gratz & Roemer, 2004). The DERS is a measure of difficulties in emotion regulation that includes six separate (albeit related) dimensions: a) lack of awareness of emotional responses, b) lack of clarity of emotional responses, c) non-acceptance of emotional responses, d) limited access to emotion regulation strategies, e) difficulties controlling impulses when experiencing negative emotions, and f) difficulties in engaging in goal directed behaviours when experiencing negative emotions. The DERS includes 36 items (e.g., "When I'm upset, I become angry with myself for feeling that way"), which participants rate on a scale from 1 (almost never) to 5 (almost always). Total scores range from 36 to 180 with higher scores indicating greater difficulties in emotion regulation, i.e., greater emotion dysregulation. In the current sample, the DERS had good internal consistency at pre-intervention (Cronbach's α= 0.91) and post-intervention (Cronbach's α= 0.91).

Attentional Control Scale (ACS; Derryberry & Reed, 2002). The ACS is a self-report questionnaire that has been developed to measure individual differences in attentional control. It comprises 20 items that are scored on a 4-point scale (1= almost never; 2= sometimes; 3= often; 4= always) with higher scores indicating better attentional control. The ACS contains two correlated factors of attentional focusing and switching (Ólafsson et al., 2011), whereby the focusing factor measures the ability to focus attention when faced with distraction, and the shifting factor measures flexible cognitive control. In the current sample, the ACS had good internal consistency at pre-intervention (Cronbach's α= 0.85) and post-intervention (Cronbach's α= 0.86).

3.3.2 Cognitive task

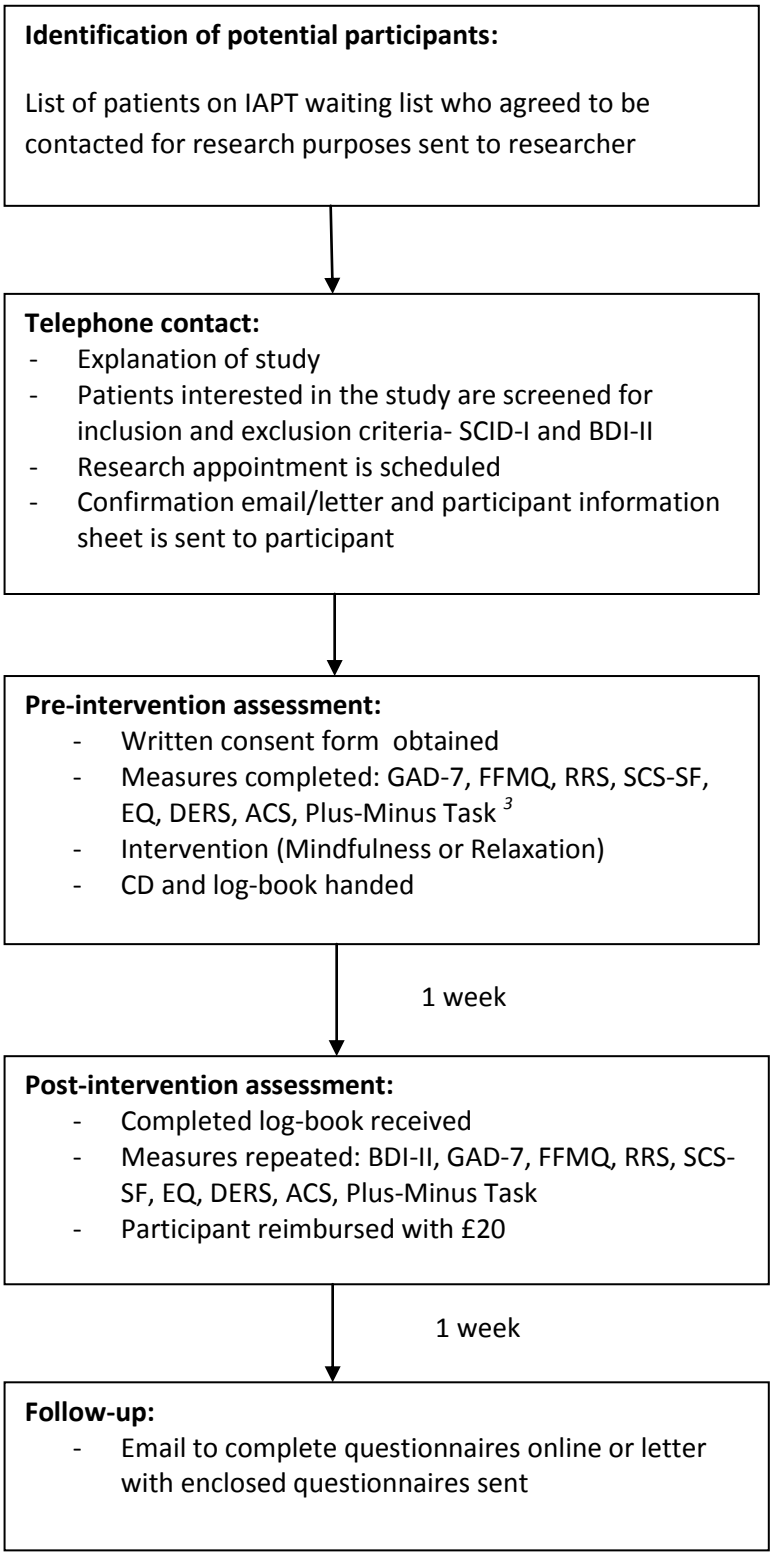
Plus–minus task. The plus-minus task was adapted from Jersild (1927) and Spector and Biederman (1976), as described by Miyake, Friedman, Emerson, Witzki, and Howerter (2000). The task consists of three lists of 30 two-digit numbers (the numbers 10–99 pre-randomised without replacement) on a single sheet of paper. On the first list, participants were instructed to add 3 to each number and write down their answers; on the second list, they were instructed to subtract 3 from each number; on the third list, they were asked to alternate between adding and subtracting 3 from the numbers. Emphasis of instructions was on both speed and accuracy. List completion times were measured by a stopwatch. Main outcome variable was the cost of shifting between the operations of addition and subtraction, which was calculated as the difference between the time to complete the alternating list (list 3) and the average of the times to complete the addition and subtraction list (lists 1 and 2, respectively).

3.4 Procedure

IAPT services at Lambeth, Southwark, and Croydon were contacted for the purposes of recruitment for the current research. A member of staff at those IAPT services conducted an initial assessment of patients and obtained permission from them to be contacted for research purposes. A list of those patients who consented to be contacted and who were placed on the waiting list to have psychological treatment was sent to the researcher on a regular basis. The researcher then contacted patients on the list by telephone and provided them an overview of the

study and the different steps it entailed (telephone interview, two face-to-face research appointments, practice of the intervention for a week, and follow-up). The researcher emphasised that the brief intervention they would be able to have (mindfulness or relaxation) was *in addition to* the intervention to be provided by the IAPT service where they were on the waiting list. Patients who were interested in participating in the research were screened for inclusion and exclusion criteria, including the administration of the SCID-I interview and BDI-II. Eligible participants were offered a research appointment and were sent: an email or letter confirming the appointment, the participant information sheet, and a map of the research venue. In the first research appointment, participants (1) provided written informed consent, (2) completed the measures, (3) were randomly allocated to one of the two interventions, (4) received the intervention, (5) were given a CD with the intervention they had received, and (6) were given a log-sheet to record the amount of time they practiced the intervention. In the second research appointment (one week after the first one), participants (1) brought the completed log sheet, (2) completed the measures again, and (3) were reimbursed with £20. The follow-up occurred one week after the second research appointment and consisted of an email with a link for participants to complete the measures online, or a letter with the enclosed measures and a pre-paid envelope (see Figure 3).

Figure 3- Overview of procedure



[3] If more than 2 weeks elapsed between telephone screening and pre-intervention, then BDI-II was redone.

3.4.1 Interventions

Mindfulness

The active intervention consisted of a brief mindfulness training, which focused on mindfulness of the breath, of the body, of sounds, and of thoughts. It was taken from the guided meditation practice CD of Williams, Teasdale, Segal, and Kabat-Zinn (2012), and it lasted approximately 30 minutes. The intervention was delivered through the use of a CD, and both participant and researcher meditated while seated on a chair. Following the intervention, participants were asked for feedback, including how difficult or easy the mindfulness practice was. They were then given the mindfulness CD and a log-sheet, and were asked to practise the intervention for the following 6 days for 30 min/day and to record the amount of time they practised it. They were asked to be accurate in the completion of the log-sheet (for example, if they missed a day of practice, it would be preferable to state so).

Relaxation

The control intervention consisted of a brief relaxation training using guided visual imagery. This relaxation training has been previously used as an active control intervention to mindfulness training (Kingston, Chadwick, Meron, & Skinner, 2007). The relaxation intervention paralleled the mindfulness intervention in terms of therapist contact, time demand, and mode of delivery. Similar to the mindfulness training, participants in the control condition were given the relaxation CD and a log-sheet, and were asked to listen to the CD for the following 6 days for 30min/day and to record the amount of time they practised it.

3.5 Power calculation

Power analyses were calculated using NQuery (version 4.0) and were based on a study examining the efficacy of mindfulness based therapy on depressive symptoms in patients with current depression (Barnhofer et al., 2009).

In order to calculate Cohen's d effect size from Barnhofer et al.'s (2009) study, the reported means and standard deviations of depressive symptoms in the MBCT and TAU groups were input in NQuery, leading to an effect size of 0.94. Power was set up at .80, as conventionally considered adequate (Cohen, 1990).

The analyses showed that a sample size of 19 in each group would have 80% power to detect an effect size of 0.94 using a two group t-test with a 0.05 two-sided significance level.

3.6 Data analysis strategy

All data analyses were computed using the Statistical Package for the Social Sciences (SPSS 20, SPSS Inc., Chicago, IL, USA).

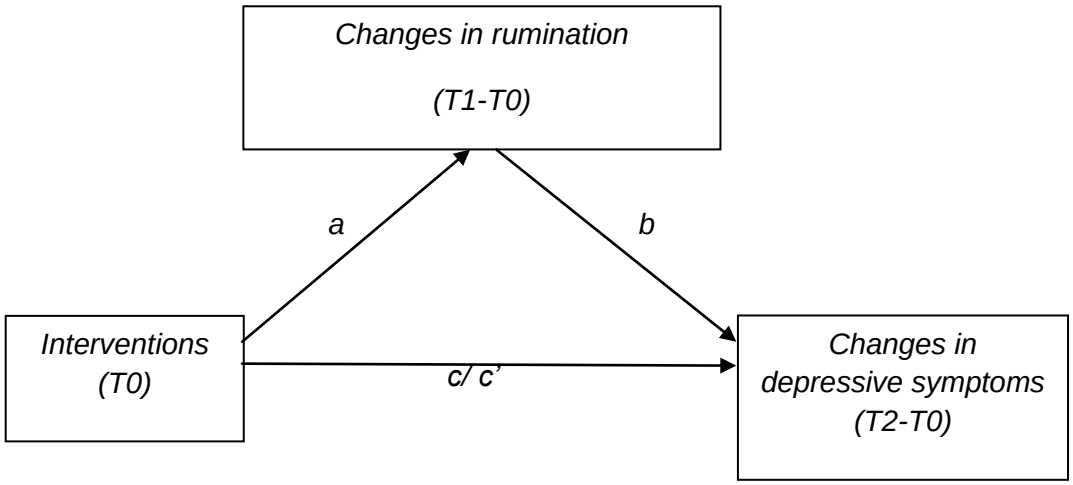
The main aim of the study is to examine whether there are any changes over time in symptoms and cognitive functioning in the mindfulness and the relaxation groups, and whether the two groups differ in the amount of change. In line with this aim, primary analyses consisted of 2 × 3 mixed-design ANOVAs with group (mindfulness versus relaxation) as a between-subjects factor, and Time (T0 versus T1 versus T2) as a within-subject factor.

A second aim of the research was to examine which factors contribute to changes in depressive symptoms at different stages of the study (active treatment and follow-up stages). In line with this aim, linear regression analyses were conducted separately for the active treatment stage and follow-up stage. For the active treatment stage, changes in depressive symptoms from pre to post intervention served as the outcome variable, and changes in self-compassion, emotion regulation, mindfulness, attention control and decentering from pre to post intervention served as predictors. For the follow-up stage, changes in depressive symptoms from post-intervention to follow-up served as the outcome variable, and changes in self-compassion, emotion regulation, mindfulness, attention control and decentering from post-intervention to follow-up served as predictors.

Mediation analysis

Mediation tests whether an observed relationship between an independent variable X and a dependent variable Y is caused by a mediator variable M. According to Preacher and Hayes (2004), the relationship between the predictor X and the outcome variable Y is often referred to as the *total effect* of X on Y (path *c*). In contrast, the relationship between X on Y whilst controlling for M is referred to as the *direct effect* of X on Y (path *c'*). The *indirect effect* of X on Y is defined as the product of the effect of X on M (path *a*) and the effect of M on Y controlling for X (path *b*), or *ab* (see Figure 4). When the effect of X on Y decreases to zero with the inclusion of the mediator M, then *complete mediation* is said to have occurred (James & Brett, 1984). When the effect of X on Y decreases, but not to zero, then partial mediation is said to have occurred (Baron & Kenny, 1986).

Figure 4- Mediation model tested in the current study showing interventions (at Time 0) affecting changes in depressive symptoms (T2-T0) via changes in rumination (T1-T0)



Bootstrapping techniques by Preacher and Hayes (2004) were used to test the mediation model shown in Figure 4. The bootstrapping approach has been suggested to be a more powerful test than the method by Baron and Kenny (1986), as the latter requires that both the *a* and *b* coefficients be statistically significant (Fritz & MacKinnon, 2007). It is possible, particularly in small samples as in the current study, that either the *a* or the *b* coefficients (or both) may be non-significant because of low statistical power, which would increase the likelihood of a Type 2 error. Furthermore, the Preacher and Hayes' approach has the advantage over Baron and Kenny's approach as a significant *c* path is not required in order to detect significant mediation (*ab*) effects (Preacher & Hayes, 2004).

In order to establish mediation, a time interval must elapse between changes in the mediator and changes in the outcome variable (Cole & Maxwell, 2003). This temporal precedence implied that the mediator was measured at a time point prior to the outcome variable. Therefore, changes in rumination from pre to post-intervention (T1-T0) served as the mediator variable, and changes in depressive symptoms from pre-intervention to follow-up (T2-T0) served as the outcome variable.

4.0 Results

In accordance with the aims and hypotheses of the current study, this section will describe: (1) results from the questionnaire measures and experimental task in the mindfulness and relaxation groups; (2) changes across time (within subjects) and between groups (between subjects) on the questionnaire measures and experimental task; and (3) predictors of changes in mood.

4.1 Comparisons of baseline, post-intervention, and follow-up characteristics

Differences between the mindfulness and relaxation groups on all measures

Table 2 shows mean scores and standard deviations on the measures of depression, anxiety, mindfulness skills, rumination, self-compassion, decentering, emotional regulation, and attention control before and after the intervention and at follow-up. There were no significant differences between the mindfulness and the relaxation groups on any of the measures at baseline.

Participants reported good adherence to the practice of both interventions. Those in the mindfulness intervention reported having practised for an average of M = 168.25 min during the intervention phase (Time 0 to Time 1), and M = 191.05 min during the follow-up phase (Time 1 to Time 2). Those in the relaxation intervention reported having practised for an average of M = 159.00 min during the intervention phase and M = 112.94 min during the follow-up phase. There were no significant differences between groups in terms of practice time at either the intervention phase [$t(38) = .82$, $p = .42$] or follow-up [$t(34) = 1.73$, $p = .09$].

There were no significant differences within the mindfulness group on practice time between the intervention and follow-up phases [$t(18) = .57$, $p = .58$]. There were, however, significant differences within the relaxation group on practice time [$t(16) = 2.92$, $p = .01$] whereby their practice time decreased from the intervention phase to the follow-up phase.

Differences between the mindfulness and relaxation groups on depression severity

As shown in Table 3, at baseline (Time 0) most patients both in the mindfulness and relaxation groups reported depressive symptoms on the BDI-II that fell in the severe range, with a smaller proportion reporting symptoms in the moderate range and a minority in the mild range. No one had sub-clinical depressive symptoms, as per inclusion criteria in the study.

From Time 0 to Time 1, the proportion of patients reporting severe depressive symptoms decreased (from 60% to 20% in the mindfulness group, and from 65%

Table 2- Means and standard deviations on questionnaires and cognitive task in the mindfulness and relaxation groups at Time 0, Time 1, and Time 2

	Time 0		Time 1		Time 2	
Measures (range)	**Mindfulness** ***n*= 20** ***M (SD)***	**Relaxation** ***n*= 20** ***M (SD)***	**Mindfulness** ***n*= 20** ***M (SD)***	**Relaxation** ***n*= 20** ***M (SD)***	**Mindfulness** ***n*= 19** ***M (SD)***	**Relaxation** ***n*= 18** ***M (SD)***
BDI-II (0-63)	30.30 (8.99)	30.45 (6.48)	20.60 (12.04)	18.20 (9.04)	18.47 (11.38)	15.72 (7.98)
GAD-7 (0-21)	12.95 (4.81)	12.75 (4.45)	9.40 (6.38)	8.15 (4.86)	7.21 (4.91)	8.06 (5.68)
FFMQ (5-195)	104.65 (14.41)	113.30 (19.16)	115.65 (18.15)	120.25 (16.24)	116.37 (19.94)	114.22 (14.41)
Observe	22.90 (4.27)	25.10 (6.62)	23.35 (5.18)	25.25 (6.25)	21.89 (6.23)	22.56 (6.23)
Describe	24.10 (6.76)	26.80 (5.45)	25.80 (6.44)	27.40 (5.99)	25.95 (7.01)	25.39 (4.91)
Act with awareness	20.45 (6.30)	21.40 (5.67)	21.95 (6.19)	23.35 (5.91)	22.89 (5.26)	23.11 (5.48)
Non-judgment	21.40 (5.03)	21.10 (7.40)	26.30 (7.64)	24.85 (8.15)	27.79 (6.51)	23.11 (5.48)
Non-reactivity	15.80 (3.75)	18.90 (6.46)	18.25 (5.12)	19.40 (6.61)	17.84 (5.44)	17.50 (5.52)
RRS (22-88)	57.10 (11.36)	61.90 (7.93)	52.70 (13.71)	56.50 (10.61)	49.79 (12.70)	52.33 (14.87)
Reflective pondering	10.55 (2.61)	12.70 (3.13)	10.65 (3.94)	11.60 (3.42)	9.63 (3.79)	10.22 (2.05)
Brooding	14.00 (4.07)	14.05 (2.56)	11.75 (4.20)	12.80 (3.09)	11.53 (4.03)	11.56 (3.05)
SCS (12-60)	28.00 (6.74)	28.65 (7.58)	32.15 (7.62)	31. 60 (8.07)	32.58 (8.84)	30.83 (5.28)
EQ Decentering (11-55)	26.15 (5.62)	28.95 (8.34)	30.60 (7.05)	31.55 (7.75)	28.68 (6.98)	27.22 (5.93)
DERS (36-180)	111.20 (24.33)	107.65 (18.73)	95.95 (20.98)	103.25 (19.26)	94.37 (20.63)	106.78 (16.21)
ACS (20-80)	45.15 (9.39)	44.80 (8.76)	46.30 (7.22)	44.00 (9.12)	45.68 (7.06)	45.11 (9.05)
Attention focus	19.90 (5.49)	20. 45 (5.47)	21.55 (4.54)	20.55 (5.17)	21.68 (4.47)	21.56 (6.05)
Attention shift	23.35 (4.87)	22.35 (4.61)	24.75 (3.58)	23.45 (4.57)	24.00 (4.15)	23.56 (3.82)
Plus Minus Task	27.73 (33.76)	37.20 (30.01)	28.83 (27.33)	30. 23 (26.42)		

Note: BDI-II- Beck Depression Inventory-II; GAD-7- Generalised Anxiety Disorder; FFMQ- Five Facets Mindfulness Questionnaire; SCS- Self-Compassion Scale; RRS- Ruminative Response Scale; EQ Decentering- Experiences Questionnaire Decentering sub-scale; EQ Rumination- Experiences Questionnaire Rumination sub-scale; DERS- Difficulties in Emotion Regulation; ACS- Attention Control Scale

to 10% in the relaxation group). Conversely, the proportion of patients reporting depressive symptoms in the non/sub-clinical range increased.

At Time 2, severity of depressive symptoms remained similar to Time 1. The groups did not differ at any time point in terms of proportion of mild, moderate or severe depressive symptomatology.

Table 3- Depression severity for the mindfulness and relaxation groups at Time 0, Time 1, and Time 2

	Mindfulness (*n*= 20) *n* **(%)**	**Relaxation (*n*= 20)** *n* **(%)**	χ^2 *p*	*df*
BDI Time 0			1.13	2
Sub-clinical	0 (0.0)	0 (0.0)	*ns*	
Mild	3 (15.0)	1 (5.0)		
Moderate	5 (25.0)	6 (30.0)		
Severe	12 (60.0)	13 (65.0)		
BDI Time 1			1.32	3
Sub-clinical	6 (30.0)	5 (25.0)	*ns*	
Mild	3 (15.0)	5 (25.0)		
Moderate	7 (35.0)	8 (40.0)		
Severe	4 (20.0)	2 (10.0)		
BDI Time 2				
Sub-clinical	6 (31.6)	7 (38.9)	.94	3
Mild	4 (21.1)	5 (27.8)	*ns*	
Moderate	5 (26.3)	4 (22.2)		
Severe	4 (21.1)	2 (11.1)		

Note. BDI-II depression scores: sub-clinical (0-13), mild (14-19), moderate (20-28), severe (29-63)

4.2 Changes across time and between groups

A 2 × 3 mixed between-within subjects ANOVA was conducted to explore the impact of Group (Mindfulness and Relaxation) and Time (Pre-intervention/Time 0, Post-intervention/Time 1, and Follow-up/Time 2) on measures of depression, anxiety, mindfulness skills, rumination, self-compassion, decentering skills, emotional regulation, and attention control.

Analyses were repeated using a 2 × 2 ANOVA (with only Time 0 and Time 1), because missing data at Time 2 might have reduced power. Results of the 2 × 3

and 2 × 2 ANOVAs were similar, and therefore only the 2 × 3 ANOVAs are reported.

A 2 × 2 mixed between-within subjects ANOVA was conducted on attention shifting, which was measured using the Plus-Minus task. This measure was used at Time 0 and Time 1 only, as it required a face-to-face assessment, and the completion of measures at Time 2 was done via email or post.

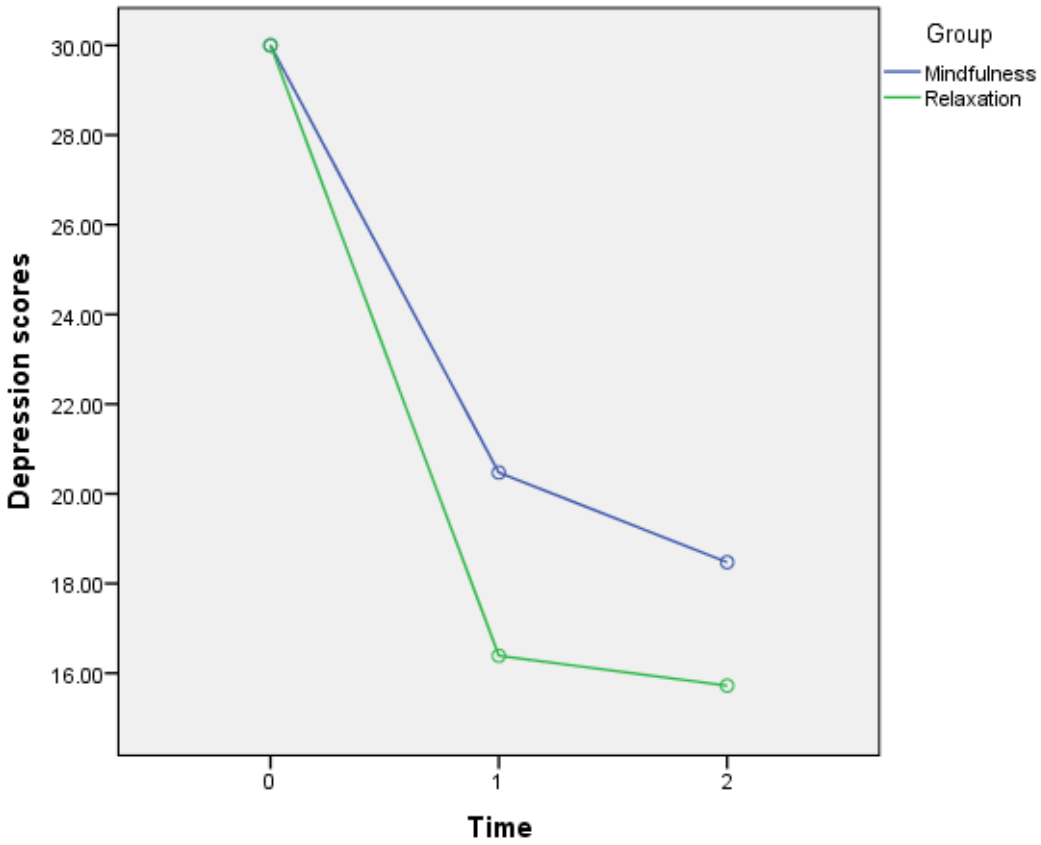
In the ANOVAs, the assumption of sphericity was tested using the Mauchly's test. If the test was significant, and therefore the assumption was violated, the Greenhouse-Geisser correction was used.

Depression

There was a significant main effect of time on depression scores [$F(2, 70) = 45.52$, $p < .001$], that had a large effect size as shown by the partial eta-squared (partial $\eta^2 = .57$). Pairwise comparisons using the Bonferroni correction indicated that the depression mean score at Time 1 was significantly lower than at Time 0 (mean difference = 11.57, $p < .001$), and the depression mean score at Time 2 was significantly lower than at Time 0 (mean difference = 12.90, $p < .001$), but there was no significant difference between depression mean score at Time 1 and at Time 2 (mean difference = 1.33, $p = .87$) (see Figure 5).

The main effect for group was not statistically significant [$F(1, 35) = .78$, $p = .38$] and had a negligible effect size (partial $\eta^2 = .022$). The interaction between time and group did not reach statistical significance [$F(2, 70) = .98$, $p = .38$] and had a negligible effect size (partial $\eta^2 = .027$).

Figure 5- Depression scores at Time 0, Time 1, and Time 2 in the Mindfulness and Relaxation groups

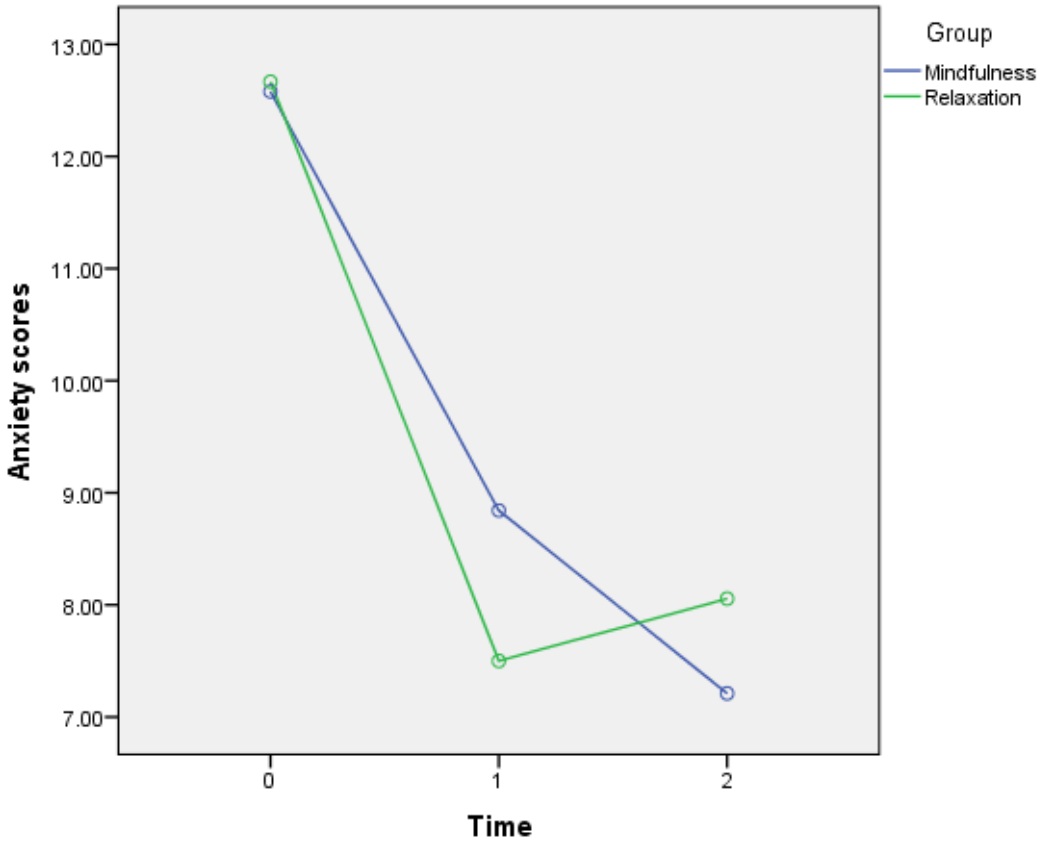


Anxiety

There was a significant main effect of time on anxiety scores [$F(2, 70) = 33.32$, $p < .001$], that had a large effect size (partial $\eta^2 = .49$). Pairwise comparisons using the Bonferroni correction indicated that the anxiety mean score at Time 1 was significantly lower than at Time 0 (mean difference = 4.45, $p < .001$), and the anxiety mean score at Time 2 was significantly lower than at Time 0 (mean difference = 4.99, $p < .001$), but there was no significant difference between anxiety mean score at Time 1 and at Time 2 (mean difference = .54, $p = .66$) (see Figure 6).

The main effect for group was not statistically significant [$F(1, 35) = .008$, $p = .93$], and had a negligible effect size (partial $\eta^2 < .001$). The interaction between time and group [$F(2, 70) = 1.37$, $p = .26$) did not reach statistical significance and had a negligible effect size (partial $\eta^2 = .038$).

Figure 6- Anxiety scores at Time 0, Time 1, and Time 2 in the Mindfulness and Relaxation groups

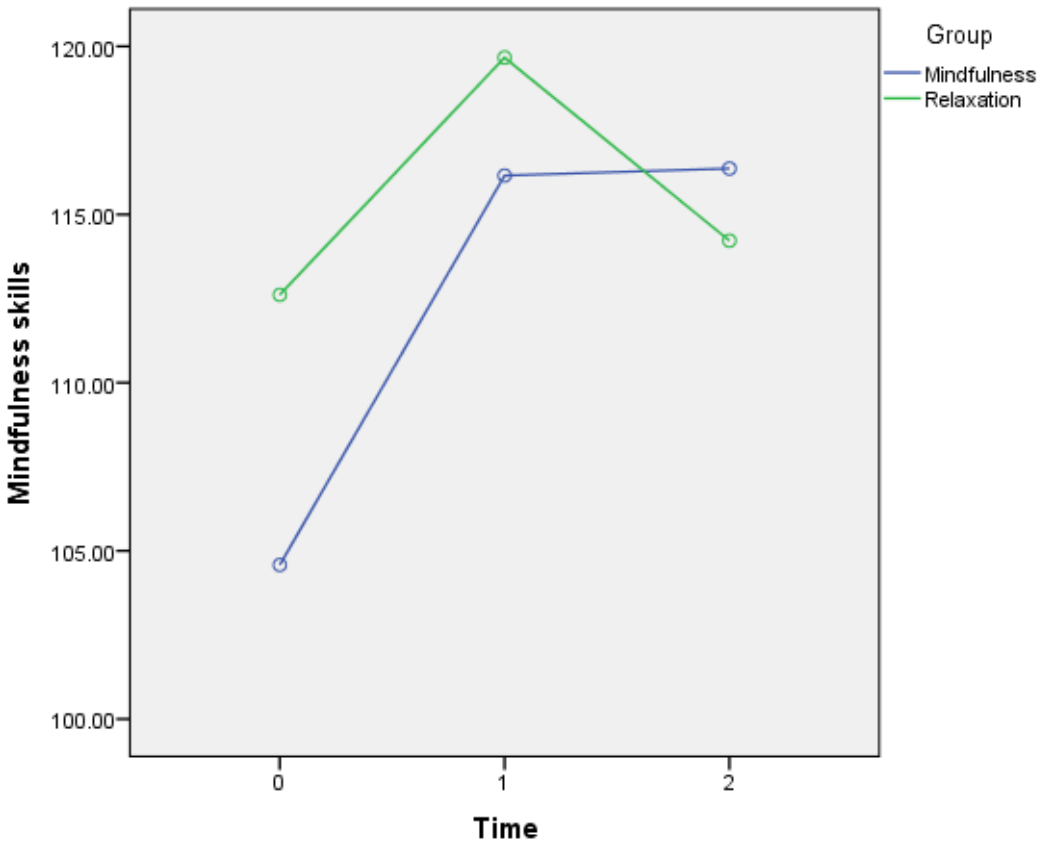


Mindfulness skills

There was a significant main effect of time on scores of mindfulness skills [$F(2, 70) = 8.59$, $p < .001$], that had a medium effect size (partial $\eta^2 = .20$). Pairwise comparisons using the Bonferroni correction indicated that mindfulness skills scores at Time 1 were significantly higher than at Time 0 (mean difference = 9.32, $p < .001$), and mindfulness skills scores at Time 2 were significantly higher than at Time 0 (mean difference = 6.70, $p = .040$), but there was no significant difference between mindfulness skills scores at Time 1 and at Time 2 (mean difference = 2.62, $p = .46$) (see Figure 7).

The main effect for group was not statistically significant [$F(1, 35) = .37$, $p = .55$] and had a negligible effect size (partial $\eta^2 = .011$), and the interaction between time and group did not reach statistical significance [$F(2, 70) = 2.42$, $p = .10$] and had a small effect size (partial $\eta^2 = .065$).

Figure 7- Scores on mindfulness skills at Time 0, Time 1, and Time 2 in the Mindfulness and Relaxation groups

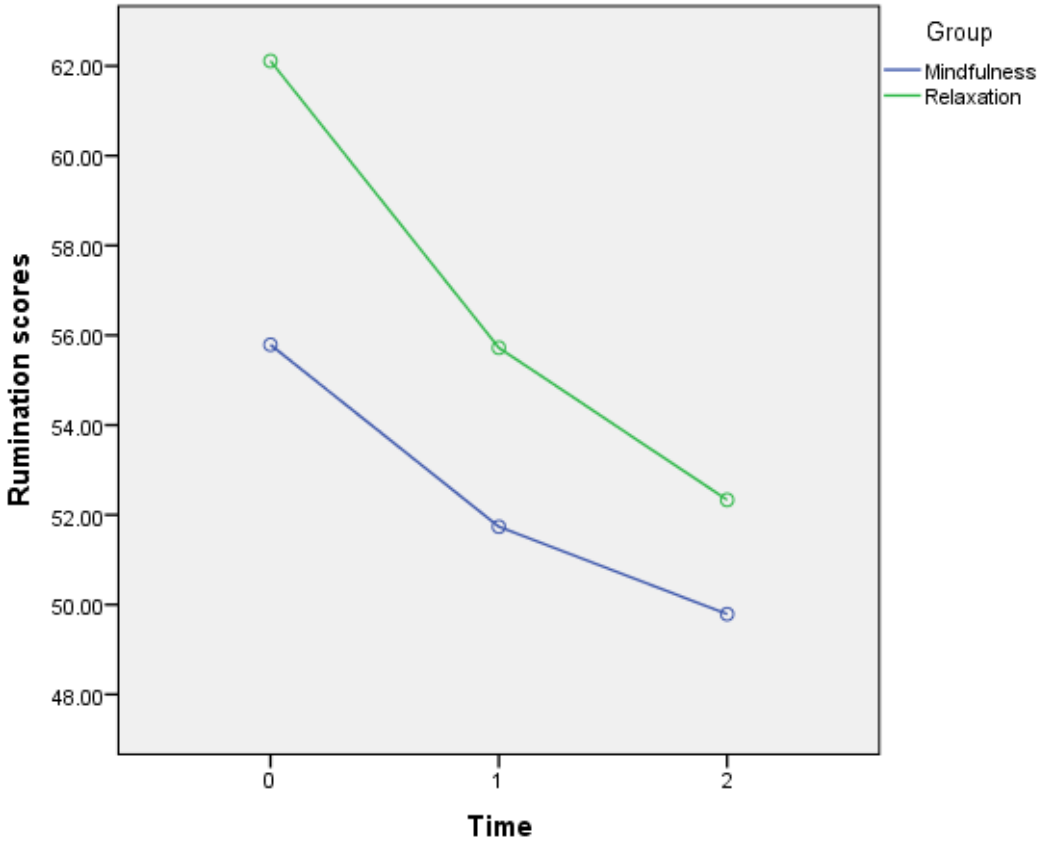


Rumination

There was a significant main effect of time on rumination scores [F(1.60, 55.86) = 9.63, p = .001], that had a large effect size (partial η^2 = .22). Pairwise comparisons using the Bonferroni correction indicated that rumination scores at Time 1 were significantly lower than at Time 0 (mean difference = 5.22, p = .001), and rumination scores at Time 2 were significantly lower than at Time 0 (mean difference = 7.89, p = .001), but there was no significant difference between rumination scores at Time 1 and at Time 2 (mean difference = 2.67, p = .67) (see Figure 8).

The main effect for group [F(1, 35) = 1.72, p = .20, partial η^2 = .047] and the interaction between time and group [F(1.60, 55.86) = .54, p = .55, partial η^2 = .015] did not attain statistical significance and had negligible effect sizes.

Figure 8- Rumination scores at Time 0, Time 1, and Time 2 in the Mindfulness and Relaxation groups

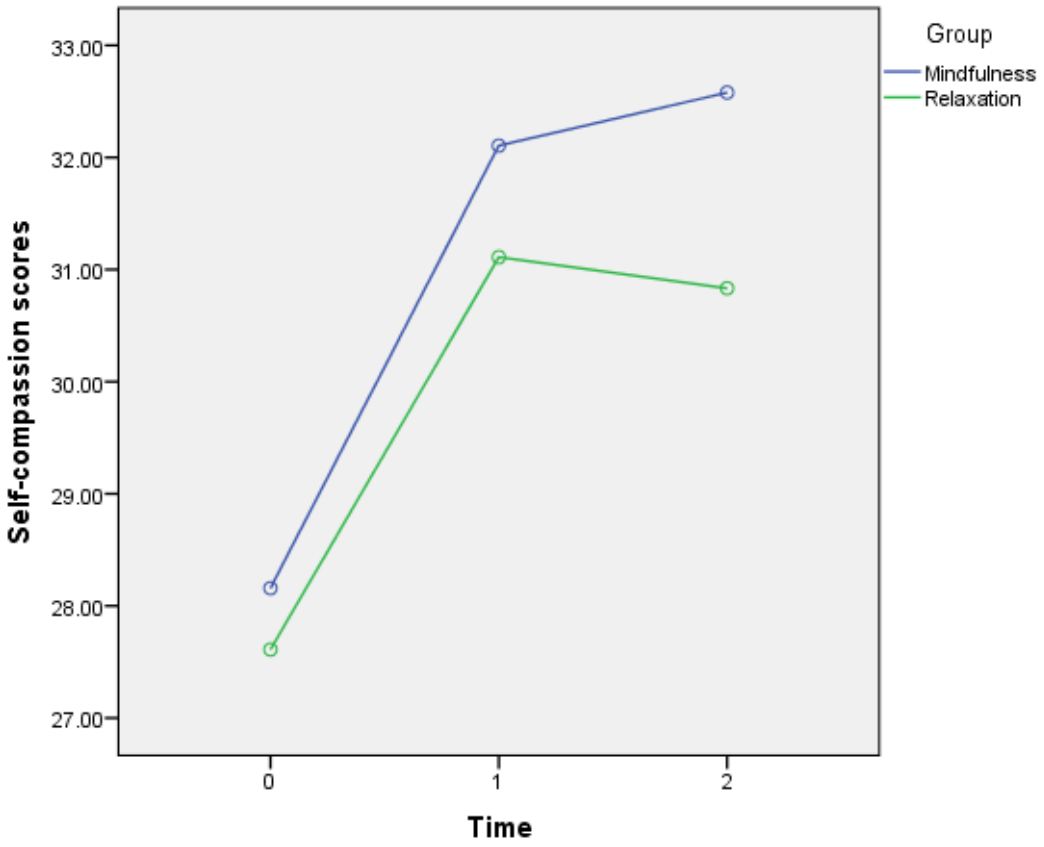


Self-compassion

There was a significant main effect of time on self-compassion scores [$F(2, 70) = 10.15$, $p < .001$], that had a large effect size (partial $\eta^2 = .23$). Pairwise comparisons using the Bonferroni correction indicated that self-compassion scores at Time 1 were significantly higher than at Time 0 (mean difference = 3.72, $p < .001$), and self-compassion scores at Time 2 were significantly higher than at Time 0 (mean difference = 3.82, $p = .003$), but there was no significant difference between self-compassion scores at Time 1 and at Time 2 (mean difference = .10, $p = 1.00$) (see Figure 9).

The main effect for group [$F(1, 35) = .25$, $p = .62$, partial $\eta^2 = .007$] and the interaction between time and group [$F(2,70) = .20$, $p = .82$, partial $\eta^2 = .006$] did not attain statistical significance and had negligible effect sizes.

Figure 9- Self-compassion scores at Time 0, Time 1, and Time 2 in the Mindfulness and Relaxation groups

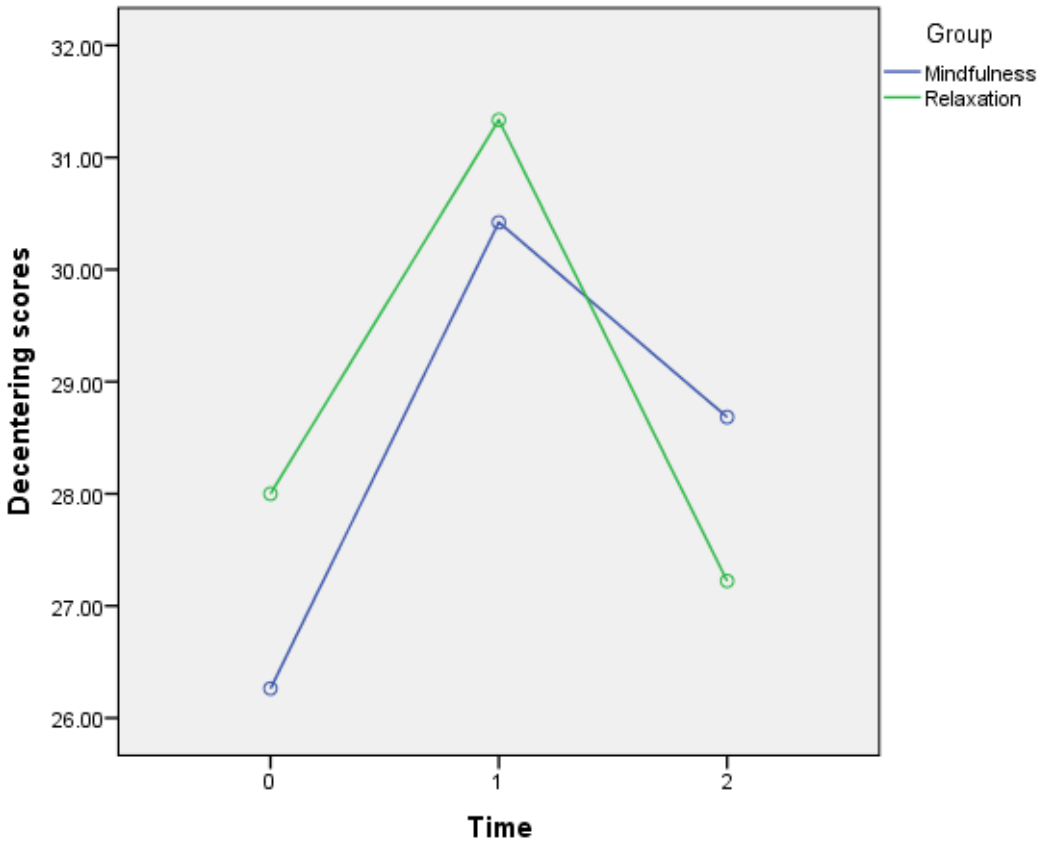


Decentering skills

There was a significant main effect of time on scores of decentering skills [F(1.65, 57.78) = 6.89, p = .004], that had a large effect size (partial η^2 = .22). Pairwise comparisons using the Bonferroni correction indicated that scores on decentering skills at Time 1 were significantly higher than at Time 0 (mean difference = 3.75, p < .001). However, scores on decentering skills at Time 2 were significantly lower than at Time 1 (mean difference = 2.92, p = .025), and there was no significant difference between decentering scores at Time 0 and at Time 2 (mean difference = .82, p = 1.00) (see Figure 10).

The main effect for group [F(1, 35) = .04, p = .84, partial η^2 = .001] and the interaction between time and group [F(1.65, 57.78) = 1.23, p = .30, partial η^2 = .034] did not attain statistical significance and had negligible effect sizes.

Figure 10- Decentering scores at Time 0, Time 1, and Time 2 in the Mindfulness and Relaxation groups

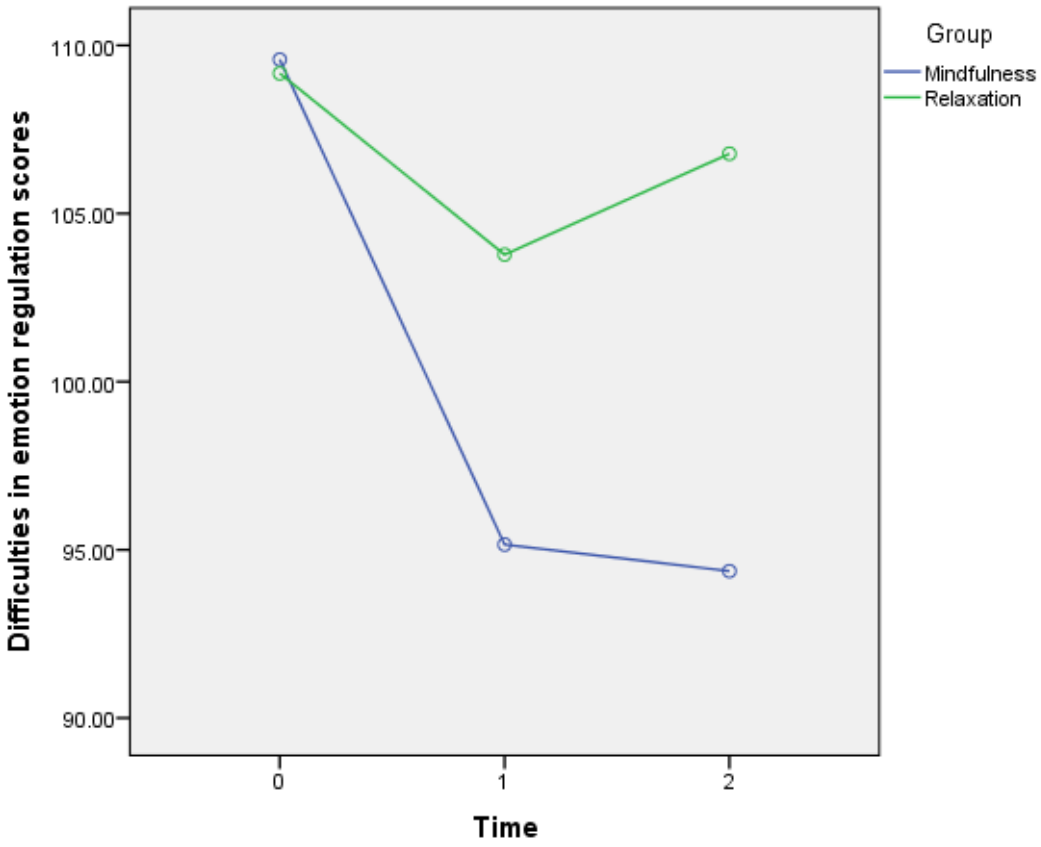


Difficulties in emotion regulation

There was a significant main effect of time on scores of difficulties in emotion regulation [$F(2, 70) = 5.97$, $p = .004$], that had a medium effect size (partial $\eta^2 = .15$). Pairwise comparisons using the Bonferroni correction indicated that scores on difficulties in emotion regulation at Time 1 were significantly lower than at Time 0 (mean difference = 9.91, $p = .011$), and scores at Time 2 were lower than at Time 0 at a trend level (mean difference = 8.80, $p = .054$), but there was no significant difference between scores on difficulties in emotion regulation at Time 1 and at Time 2 (mean difference = 1.11, $p = 1.00$) (see Figure 11).

The main effect for group was not significant [$F(1, 35) = 1.50$, $p = .23$] and had a negligible effect size (partial $\eta^2 = .041$), and the interaction between time and group did not attain statistical significance [$F(2, 70) = 2.20$, $p = .12$] and had a small effect size (partial $\eta^2 = .059$).

Figure 11- Difficulties in emotion regulation scores at Time 0, Time 1, and Time 2 in the Mindfulness and Relaxation groups

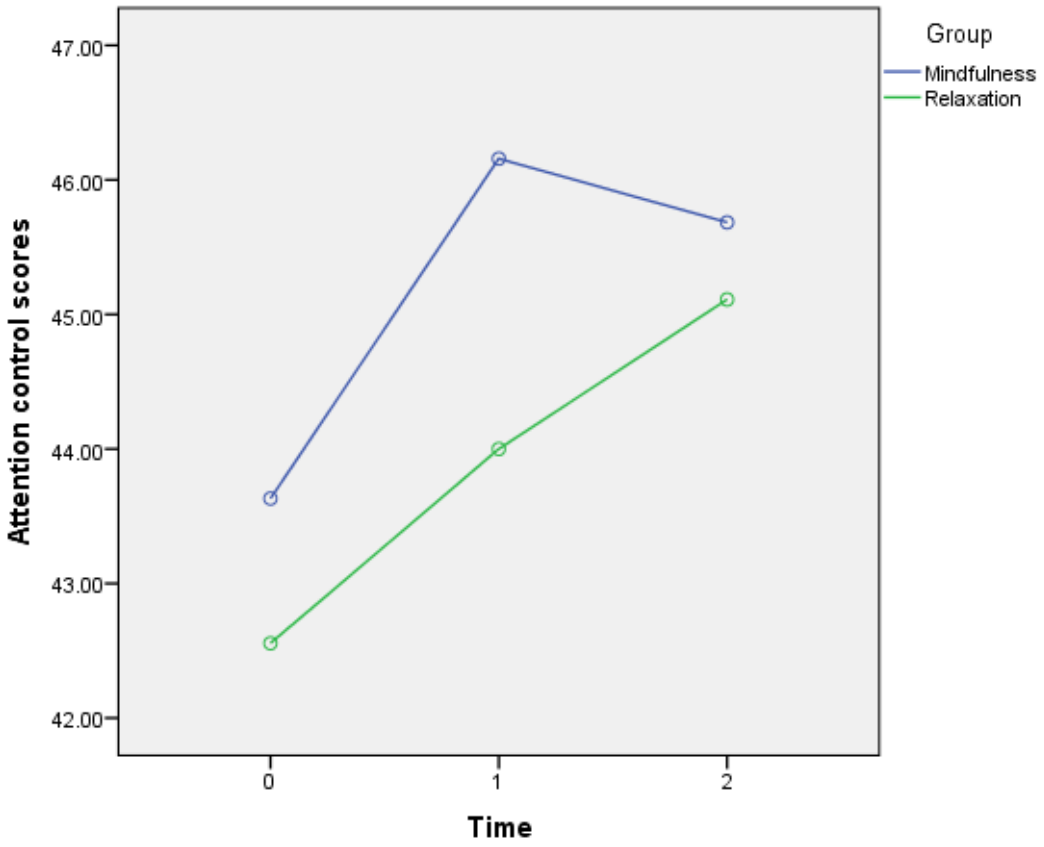


Attention control

There was a significant main effect of time on scores of attention control [$F(2, 70) = 4.32$, $p = .017$], that had a medium effect size (partial $\eta^2 = .11$). Pairwise comparisons using the Bonferroni correction indicated that scores on attention control at Time 1 were significantly higher than at Time 0 (mean difference = 1.99, $p = .041$). There were no significant differences on attention control between scores at Time 2 and at Time 0 (mean difference = 2.30, $p = .11$), and between scores at Time 1 and at Time 2 (mean difference = .32, $p = 1.00$) (see Figure 12).

The main effect for group [$F(1, 35) = .23$, $p = .64$, partial $\eta^2 = .007$] and the interaction between time and group [$F(2, 70) = .45$, $p = .64$, partial $\eta^2 = .013$] did not attain statistical significance and had negligible effect sizes.

Figure 12- Attention control scores at Time 0, Time 1, and Time 2 in the Mindfulness and Relaxation groups

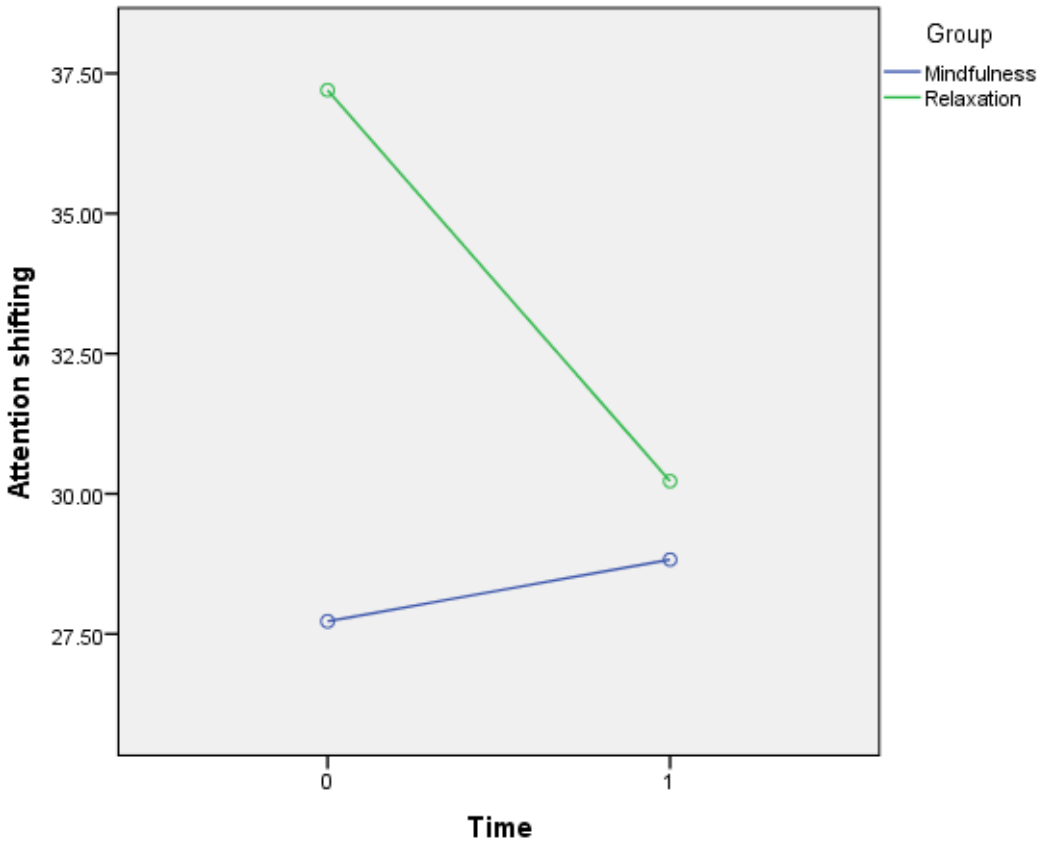


Attention shifting

The main effect of time on scores of attention shifting was non-significant and had a medium effect size [$F(1, 38) = .29$, $p = .60$, partial $\eta^2 = .11$].

The main effect of group [$F(1, 38) = .52$, $p = .48$, partial $\eta^2 = .013$] and the interaction between time and group [$F(1, 38) = .54$, $p = .47$, partial $\eta^2 = .014$] did not attain statistical significance and had negligible effect sizes (see Figure 13).

Figure 13- Attention shifting at Time 0 and Time 1 in the Mindfulness and Relaxation groups



4.2.1 Summary of changes across time and between groups

There were main effects of time for all the measures except attention shifting, indicating that from Time 0 to Time1 participants' scores on measures of depression, anxiety, rumination, and difficulties in emotion regulation significantly decreased, and their scores on measures of mindfulness skills, self-compassion, decentering, and attention control significantly increased. These changes were maintained at Time 2 (except for decentering and attention control), but no further improvement occurred between Time 1 and Time 2.

There was no main effect of group on any of the measures.

There was no significant interaction effect between time and group, indicating that both groups changed in the same direction and with similar intensity, and therefore both groups benefited similarly from the intervention across time.

4.3 Predictors of change in mood

Considering that both the mindfulness and relaxation interventions led to improvements in psychological symptoms and cognitive functioning, and that those changes were maintained at follow-up, the next pertinent research question to investigate was to explore which variables contributed to changes in depressive symptoms.

Linear regression analyses were conducted in order to examine predictors of change from pre to post intervention (active treatment stage), and from post-intervention to follow-up (follow-up stage). The aim was to investigate which variables contributed to changes in depressive symptoms at these two stages.

In the active treatment stage, the dependent variable was changes in depressive symptoms from pre to post-treatment, and the independent variables were changes in self-compassion, mindfulness, emotion regulation, attention control and decentering also from pre to post-treatment. In the follow-up stage, the dependent and independent variables were the same, but this time with data from post-treatment to follow-up.

Table 4- Regression coefficients showing predictors of changes in depressive symptoms in the active treatment and follow-up phases

Pre to post intervention changes	*Beta*	*p*
Self-compassion	.03	.89
Difficulties in emotion regulation	.33	.16
Mindfulness	.13	.53
Attention control	.05	.75
Decentering	-.43*	.03
Post intervention to follow-up changes		
Self-compassion	.27	.23
Difficulties in emotion regulation	.33	.09
Mindfulness	-.57*	.01
Attention control	-.19	.21
Decentering	-.05	.75

As shown in Table 4, decentering is the only significant predictor of changes in depressive symptoms from pre to post-treatment, and mindfulness is the only significant predictor of changes in depressive symptoms from post-treatment to follow-up.

4.4 Exploratory mediation analyses

Exploratory mediation analyses were conducted in order to examine whether the relationship between the intervention (mindfulness or relaxation) and changes in depressive symptoms was mediated by changes in rumination (see Figure 4 above). Indirect effects were calculated using a boostrapping approach with 10000 resamplings. The following mediation model was tested.

(1) Changes in rumination may mediate the relationship between the interventions and changes in depressive symptoms.

Table 5- Path coefficients and indirect effects for mediational paths

	Coefficients			Indirect effect (*ab*) [α]		
Paths	*B*	*SE*	*p*	*M*	*SE*	*CI*
c	-2.75	3.26	.40	-.79	1.16	[-4.40 to .64]
a	-2.33	2.65	.38			
b	.34	.20	.10			
c'	-1.96	3.21	.55			

Path *c* denotes the total effect of the independent variable (Mindfulness/Relaxation interventions) on changes in depressive symptoms (from pre-intervention to follow-up). Path *a* denotes the effect of interventions on changes in rumination (from pre to post-intervention) (mediator). Path *b* denotes the effect of changes in rumination on changes in depressive symptoms, controlling for the effects of interventions. Path *c'* denotes the direct effect of the interventions on changes in depressive symptoms, controlling for changes in rumination.
[α] In each analysis, significance of the indirect effect *ab* was based on an empirical distribution using bootstrapping with 10000 resamples.

As shown in Table 5, there were no significant indirect effects and no significant path coefficients.

5.0 Discussion

The current chapter will evaluate the main findings of the thesis, discuss its strengths and limitations, discuss future directions of research, highlight potential conceptual and clinical implications, and lastly provide concluding comments.

5.1 Summary and evaluation of the findings

The present study investigated the effects of brief mindfulness and relaxation interventions on depressive symptoms. Both interventions comprised an initial face-to-face session followed by daily home practice for half an hour of either mindfulness or relaxation using guided imagery. After one week of practice, participants attended a second face-to-face session and completed post-intervention measures. In addition, there was a follow-up assessment (via post or email) one week after the post-intervention session. The interventions were equivalent in terms of therapist contact, time demand (30 minutes/day), and mode of delivery (audio recording of guided practice).

5.1.1 Main findings

Effect of interventions on depressive symptoms (Hypothesis 1)

Hypothesis 1 was partially supported. Consistent with hypothesis 1, the present study showed that both mindfulness and relaxation interventions led to reduced depressive symptoms among currently depressed patients, and the results were maintained at follow-up. The finding that the mindfulness intervention contributed to reduced depressive symptoms among currently depressed patients adds to a growing body of evidence (Barnhofer et al., 2009; Eisendrath et al., 2008; Finucane & Mercer, 2006; Kenny & Williams, 2007) suggesting that mindfulness interventions can successfully reduce symptoms of depression in currently symptomatic patients. It also corroborates research that has suggested an association between mindfulness practice and lower levels of negative emotions (Jha, Stanley, Kiyonaga, Wong, & Gelfand, 2010).

The finding that relaxation also led to reduced depressive symptoms at post-intervention and follow-up is in line with a recent review on the effects of relaxation for depression showing that relaxation reduced self-reported depressive symptoms compared to waitlist and no treatment (Jorm et al., 2008), and with previous studies showing that relaxation interventions led to decreases in psychological distress among community samples (Agee, Danoff-Burg, & Grant, 2009; Jain et al., 2007).

However, contrary to hypothesis 1, there was no significant difference between the mindfulness and relaxation groups on depressive symptoms at post-intervention or follow-up. This finding is consistent with previous studies showing no significant differences between the effects of mindfulness and relaxation training on psychological distress (Agee et al., 2009; Jain et al., 2007). The finding that both interventions led to similarly reduced symptoms was not accounted for by amount of practice, as there were no significant differences between the two groups on practice time during the active intervention and follow-up stages.

The fact that relaxation produced similar effects to mindfulness in the reduction of depressive symptoms might be explained by several factors. Relaxation might have served as a distraction, and according to the response styles theory (Nolen-Hoeksema, 1991, 2000; Nolen-Hoeksema et al., 2008) distractive behaviours decrease depressive mood both by preventing individuals from focusing on negative thoughts and feelings, and by increasing opportunities for positive reinforcement through engagement in pleasant activities. Nevertheless, even if relaxation is conceptualised as a distractive behaviour, mindfulness has been shown to be more effective in reducing dysphoric mood than distraction strategies in a laboratory study (Broderick, 2005). It seems, however, that relaxation/guided visual imagery is not merely a distractive behaviour. Listening to the relaxation CD is likely to require the ability to sustain attention and to shift attention by redirecting it back to the guidance when the mind wanders. Therefore, and similar to mindfulness, relaxation might have served as an attention training leading to improved attention control. Research has suggested that attention control has moderate and negative correlations with depressive symptoms, indicating that increased ability to focus and shift attention is associated with decreased depressive symptoms (Ólafsson et al., 2011). Moreover, the pleasant physical sensations induced by the relaxation intervention (a sense of calmness and relaxation) might have contributed to a positive state of mind, thus serving as a buffer against depressive symptoms.

It is not unusual for an active control intervention to have similar benefits to an experimental intervention. MacCoon and colleagues (MacCoon et al., 2012) developed and validated an active control intervention (the Health Enhancement Program- HEP) to be used when testing the relative efficacy of MBSR. Similarly to the present study, both HEP and MBSR led to improvements in psychological distress, but no differences were found between the two groups. Again, a recent dismantling trial compared the effects of MBCT with an active control intervention

(cognitive psychological education, CPE) that modelled MBCT but without the meditation, and TAU (Williams et al., 2014). There were no significant differences between treatment groups on risk of depression relapse for the whole group, and only among those with high severity of childhood trauma did MBCT provide significant protection against relapse (Williams et al., 2014).

It is also possible in the present study that the absence of group differences reflected statistical power (see Limitations below), or the brevity of the interventions, or both.

5.1.2 Exploratory findings

Predictors of change in depressive symptoms during the active phase of treatment and follow-up, independently of intervention received

The study showed that changes in decentering skills predicted changes in depressive symptoms during the active stage of treatment. This suggests that an increase in the ability to decenter from negative thinking during the first week of intervention practice is the most relevant factor in the reduction of depressive symptoms. This finding supports previous studies showing that a decentered perspective was associated with a decrease in depressive symptoms among depressed patients who had MBCT (Teasdale et al., 2002).

In addition, the present results showed that changes in mindfulness skills predicted changes in depressive symptoms during the follow-up stage. This is consistent with findings from other studies suggesting that changes in mindfulness were associated with a reduction in depressive symptoms (Kumar et al., 2008). Considering that there were no significant changes in depressive symptoms from post-intervention to follow-up, what this finding tentatively suggests is that mindfulness skills were a relevant factor in the maintenance of depressive symptoms during the follow-up period.

The pattern of changes suggests that, for both interventions, depressive symptoms decreased rapidly within the actual intervention period, and gains were maintained during the follow-up period. This is in line with studies indicating that, in the treatment of depression, significant improvements often occur during the early stages of therapy (Busch, Kanter, Landes, & Kohlenberg, 2006; Ilardi & Craighead, 1994, 1999). A more detailed examination of the pattern of changes according to severity of depressive symptoms suggests that, from pre to post-intervention, symptoms in the severe range decreased in both groups (from 60% of participants to 20% in the mindfulness group, and from 65% to 10% in the relaxation group),

with an increase in scores falling in the sub-clinical range (see Table 3 in Results). These findings reflect the large effect size found for changes in depressive symptoms over time, and suggest that, in addition to being statistically significant, changes in depressive symptoms were clinically meaningful.

Practice levels (for each intervention) were relatively high during the active intervention period; however, they decreased in the relaxation group during the follow-up period, whereas in the mindfulness group they were maintained, although differences between groups did not emerge as statistically significant. The finding that in the relaxation group (but not the mindfulness group) practice time was reduced over time is in line with previous studies showing that participants in a mindfulness intervention practised mindfulness twice as often as participants in a relaxation intervention practised relaxation (Agee et al., 2009).

5.1.3 Other subsidiary findings

From pre to post-intervention, participants' scores on anxiety, rumination, and difficulties in emotion regulation significantly reduced, and their scores on mindfulness skills, self-compassion, decentering, and attention control significantly increased. These changes were maintained at follow-up (with the exception of decentering and attention control), but no further improvement occurred between post-intervention and follow-up. There were no significant differences between the two groups on any of these measures. Moreover, there was no significant interaction effect between time and group, indicating that both groups benefited similarly from the interventions across time. Evaluation of these findings will be done separately for each measure, and this will be followed by an examination of the similarities and differences between the two interventions.

Anxiety symptoms

Mindfulness contributed to a reduction in anxiety symptoms, a finding that adds to previous studies showing that mindfulness can be an effective intervention in the treatment of anxiety disorders (Kabat-Zinn et al., 1992). The emphasis in mindfulness on noticing body sensations and thoughts without perceiving them as catastrophic might have contributed to its efficacy in reducing anxiety symptoms.

Relaxation also contributed to the reduction of anxiety symptoms. This is not surprising, considering that relaxation has been widely used in the treatment of anxiety disorders, and its effectiveness in the treatment of these disorders has been shown in previous studies (Borkovec & Costello, 1993; Ost & Breitholtz,

2000; Rees, 1995). It is likely that the calming effects of relaxation might have counteracted symptoms of anxiety.

From pre to post-treatment, anxiety scores decreased from a moderately-severe range to a moderate range, and remained in the moderate range at follow-up, which reflects the large effect size found for changes in anxiety symptoms over time (see Table 2 and cut-off scores for GAD-7 in Method).

Rumination

In line with a number of previous studies (Chambers et al., 2008; Kumar et al., 2008; Raes & Williams, 2010; Shahar et al., 2010), the findings of the present study suggest that mindfulness led to a decrease in rumination. The study showed that relaxation also led to reduced rumination, and that there were no significant differences between the mindfulness and relaxation groups on rumination scores at post-intervention. A study by Jain et al. (2007) found that, following a mindfulness, relaxation, or control intervention, the mindfulness group had significantly lowered levels of rumination than the control group, and lowered levels of rumination than the relaxation group at a trend level. However, in Jain et al.'s (2007) study and despite randomisation, the relaxation group had significantly higher rumination at pre-intervention than the mindfulness group, while in the current study there were no pre-intervention differences in rumination scores.

Mindfulness and relaxation both contributed to significantly reduced rumination, and this reduction in rumination over time had a large effect size, which suggests both interventions were effective in reducing symptoms. It is conceivable, however, they did it through slightly different mechanisms. Mindfulness practice, by encouraging paying attention to moment-by-moment experiences, may increase individuals' awareness of when ruminative responses occur. Mindfulness also encourages a non-judgemental stance. By observing ruminative responses in a non-judgmental way, individuals can then disengage from these ruminative responses before they may spiral out of control and further worsen mood. This is in accordance with recent studies suggesting that the experience of 'uncontrollable' ruminative thinking is the most likely aspect to fuel depressive feelings (Raes & Williams, 2010). In contrast, the focus of attention in relaxation is in the external stimulus of the voice and construction of visual images, which requires cognitive resources that could otherwise be used for rumination. Despite their differences in terms of focus of attention, both mindfulness and relaxation are likely to enable disengagement from rumination, thereby decreasing it. Therefore, the two

interventions both served the function of interrupting the positive feedback loop between ruminative thinking and negative mood.

Mindfulness

Self-reported mindfulness increased significantly from pre to post-treatment in the mindfulness group. This is consistent with the expectation that mindfulness training leads to improvements in mindfulness skills, and corroborates previous studies (Chambers et al., 2008; Eisendrath et al., 2008; Kuyken et al., 2010; Raes et al., 2009).

The relaxation intervention also increased self-reported mindfulness. It is possible that the continued focus of attention required in the relaxation/guided imagery intervention contributed to increased mindfulness, as the latter relies on mechanisms of attention control (Malinowski, 2013).

Across interventions, changes in mindfulness skills over time had a medium effect size, indicating that both interventions were reasonably effective in improving participants' mindfulness skills.

There was no significant difference between the mindfulness and relaxation groups in mindfulness skills at post-intervention or follow-up, and this is in line with a previous study that compared a 5-week mindfulness meditation and progressive muscle relaxation interventions, and showed that there were no significant between-group differences in mindfulness scores at post-intervention and follow-up (Agee et al., 2009). Unlike Agee and colleagues who found no significant changes in mindfulness from pre to post-intervention for both treatment conditions, the current study showed that both groups significantly improved in mindfulness skills. This is remarkable considering the shorter length of intervention in the current study (1 week) compared with Agee et al.'s study (5 weeks). The current study, however, used a clinical sample of depressed patients waiting for psychological treatment, whereas Agee et al.'s study used a non-clinical community sample.

Self-compassion

The current study provides empirical evidence that mindfulness training has a beneficial effect on self-compassion, and this is in accordance with previous clinical (Krieger, Altenstein, Baettig, Doerig, & Holtforth, 2013; Kuyken et al., 2010; Van Dam et al., 2011) and non-clinical studies (Birnie et al., 2010; Shapiro et al., 2005).

Recent reports also suggest that self-compassion is negatively associated with depressive symptoms and predicts symptom severity (Krieger et al., 2013; Van

Dam et al., 2011). For example, Krieger and colleagues (2013) found that depressed patients showed lower levels of self-compassion than never-depressed individuals, even when controlling for depressive symptoms. Moreover, self-compassion has been shown to contribute to symptom change through the mediating role of rumination and cognitive and behavioural avoidance (Krieger et al., 2013). While the findings of the current study do not assess if self-compassion contributed to symptom change, they do provide evidence that self-compassion significantly increases following both mindfulness and relaxation training, and that the effect size of these changes is large, indicating that both interventions led to large increases in self-compassion.

In Kuyken et al.'s (2010) study, self-compassion mediated improvement in depression in the MBCT group. The present study, however, suggests that self-compassion may not be uniquely developed through mindfulness training, but also through relaxation training (see implications of the research below). Recent reports, however, suggest that the self-compassion scale used in the present study (Raes et al., 2011) and widely used in mindfulness-based intervention research has some psychometric difficulties (Williams, Dalgleish, Karl, & Kuyken, 2014). The fact that the construct of self-compassion does not seem to be well measured through the self-compassion scale might have contributed to the non-specificity of self-compassion to mindfulness. Conversely, it is conceivable that relaxation training does contribute to increased self-compassion, in that giving oneself 30 minutes of relaxing time-out each day, during which positive images and feelings are generated, is arguably an act of self-compassion.

Attention control

The current study showed that mindfulness training led to an increase in attention control, and this finding corroborates previous studies suggesting that mindfulness practice is associated with improvements of attention function, including the ability to focus and sustain attention (Jensen et al., 2012; Moore & Malinowski, 2009). The relaxation intervention was also effective in improving attention control, which is in line with previous experimental studies suggesting that relaxation can lead to improvements in attention control as measured in a behavioural task (Scheufele, 2000).

The effect size of changes in attention control was medium, suggesting that participants' skills in controlling their attention increased over time. Mindfulness and relaxation/guided visual imagery both involve training in sustaining attention in

a given stimulus (in the breath, body, sounds and thoughts for the mindfulness intervention, and in the construction of visual scenarios for the relaxation/guided visual imagery intervention). Moreover, they both require the ability to shift and redirect attention to these stimuli when the mind wanders, and therefore it is not surprising that both interventions led to improvements in attention control.

Decentering

The current study showed that mindfulness training led to increased decentering skills, which supports previous studies suggesting that patients who received MBCT reported increased levels of decentering towards one's experience, and that was protective for those with a history of depression (Hargus et al., 2010; Teasdale et al., 2002).

Decentering pertains to the ability to perceive negative thoughts and feelings as passing events in the mind, as opposed to aspects of the self or reflections of reality. Decentering is assumed to be a core skill trained through formal mindfulness practice, and it has been hypothesised to be one of the primary mechanisms of therapeutic change in depression (Teasdale et al., 2002). It is therefore not surprising that mindfulness led to increased decentering skills. It is, however, surprising that practising relaxation/guided imagery was equally effective in increasing decentering. Moreover, changes in decentering across interventions had a large effect size, suggesting that both mindfulness and relaxation were effective in increasing decentering skills. This is in contrast with a recent study comparing the differential impact of mindful breathing, progressive muscle relaxation, and loving-kindness meditation on decentering (Feldman, Greeson, & Senville, 2010), which showed that the mindful breathing group reported greater decentering skills in comparison with the other two groups. There are some differences, however, between the current study and Feldman et al.'s study: the current study used relaxation/guided visual imagery (as opposed to progressive muscle relaxation), and it is possible that the visual imagery, being a mental activity that implies attention focus and attention switching skills, might greatly facilitate decentering in comparison with muscle relaxation, which is a more physical-based activity. Also, the length of the relaxation/guided imagery in the current study was one week of daily 30-min practice, while Feldman and colleagues (2010) used a single 15 min session.

Emotion regulation

Previous studies suggest that mindfulness practice can produce beneficial effects on emotion regulation (Arch & Craske, 2006; Nielsen & Kaszniak, 2006; Ortner et al., 2007). Consistent with these studies, the current study showed that mindfulness significantly reduced difficulties in emotion regulation. Mindfulness explicitly promotes a non-judgmental awareness and acceptance of emotions. This non-judgemental approach might have facilitated individuals engaging with their potential negative emotions without resorting to maladaptive responses, such as avoidance (under-engagement) or rumination (over-engagement). This is in line with recent conceptualisations of mindfulness suggesting it is a key component of adaptive emotion regulation (Aldao, Nolen-Hoeksema, & Schweizer, 2010).

The relaxation intervention, however, resulted in similar benefits in emotion regulation, which does not support findings from a randomised experimental study (Ortner et al., 2007) in which participants received mindfulness meditation training, relaxation training, or no intervention (waiting-list control) during a 7-week period. Although both mindfulness and relaxation resulted in increased well-being, reductions in emotional interference (from unpleasant pictures) were specific to mindfulness, indicating that mindfulness may attenuate reactivity to emotional stimuli- a component of emotion regulation skills (Ortner et al., 2007). It is possible that these differing findings reflect the relatively small sample size of the current study (n= 20), compared with Ortner et al.'s (2007) study (n= 82). In addition, the studies differed in the emotion regulation measures used (questionnaire in the current study versus experimental task in Ortner et al's study).

Both interventions contributed to increased emotion regulation, and these changes had a medium effect size, suggesting that both interventions were reasonably effective in the reduction of emotion regulation difficulties. However, it is possible they did so through slightly different mechanisms. The mindfulness intervention involved paying attention to the breath, body sensations, sounds, and thoughts from a meta-cognitive perspective, from which they are seen as transitory mental phenomena. Mindfulness thus results in exposure to negative thoughts and feelings, thereby reducing experiential avoidance, and increasing individuals' ability to tolerate negative emotions- a component of emotion regulation skills. On the other hand, relaxation/guided visual imagery is unlikely to result in exposure to potential negative thoughts and feelings; instead, individuals are distracted from their thoughts by engaging in an alternative mental activity (constructing visual

images). In the face of negative mood, the act of shifting attention to a mental activity other than thinking about the current mood may serve as a helpful strategy.

5.1.4 Similarities and differences between mindfulness and relaxation

There were no significant differences (with a negligible effect size) between the mindfulness and relaxation groups on any of the psychological symptoms and cognitive functioning measures. Moreover, the interaction effects between time and group for the psychological symptoms and cognitive functioning variables were all non-significant and, with the exception of mindfulness and difficulties in emotion regulation, which had a small effect size, the effect sizes for the remaining variables were all negligible, suggesting both groups benefited similarly from the intervention across time. These findings suggest that both interventions overlap on some aspects. Conversely, both interventions might lead to similar outcomes, but through different mechanisms. The potential similarities and differences between the two interventions will be explored in this section.

Mindfulness and relaxation share common components, such as restful alertness and mental activity, in so far as they both promote feelings of calmness through focus of attention. Both interventions are practised in a seated or lied down position, and therefore are similar in their physical inactivity. Moreover, they may lead to relaxation, although the purpose of mindfulness is not to produce relaxation, but to teach non-judgmental observation of events (Baer, 2003). Nevertheless, both interventions overlap in their potential relaxation effect which, in itself, may contribute to an increased sense of well-being. In a grounded theory of mindfulness for psychosis (Abba, Chadwick, & Stevenson, 2008), for example, participants described a relaxing (verb) of tension as they began to let go of struggle and fight with psychotic experience- that is, whilst achieving a state of relaxation may not occur, there was a palpable feeling of release of tension and struggle in mindfulness.

Mindfulness and relaxation can be conceptualised as forms of cognitive training in attention control, as they both require the ability to hold attention (breath in mindfulness and visual images in relaxation/guided visual imagery), to recognise when focus is lost, and to redirect attention when the mind wanders. The difference perhaps is that in mindfulness the attention is focused on naturally occurring internal and external stimuli as those experiences unfold, while in relaxation/guided visual imagery the attention is focused on consciously generated images.

Nevertheless, mindfulness and relaxation/guided visual imagery are both attention-training activities.

The initial effects of the two interventions in terms of reducing psychological symptoms and increasing cognitive functioning may be difficult to distinguish. In the long-term, however, it is hypothesised that relaxation/guided visual imagery may become repetitive as the focus of attention is in the same content over and over again, whereas in mindfulness the focus of attention varies according to current experiences and how they are felt at each moment. This is consistent with the finding that in the relaxation group practice time decreased over time, whilst in the mindfulness group it remained similar. Furthermore, in relaxation training patients are unlikely to learn how to cope with their negative feelings and thoughts when they occur (other than shifting their attention to another activity), while in mindfulness patients learn to accept those negative feelings and thoughts (Baer, 2003), and eventually to change *the relationship* with them (Teasdale et al., 2002). In this process, it is likely that patients learn they can cope with their internal experiences, independently of their negative valence.

5.1.5 Exploratory mediation analysis

In the current study changes in rumination (from pre to post intervention) did not mediate the relationship between the effects of interventions (mindfulness or relaxation) and changes in depressive symptoms (from pre-intervention to follow-up).

Previous research reported that mindfulness skills reduce ruminative reactions from escalating into uncontrollable ruminative cycles (Raes & Williams, 2010), and that ruminative cycles increase the severity of depressive symptoms (Morrow & Nolen-Hoeksema, 1990; Nolen-Hoeksema & Morrow, 1993; Nolen-Hoeksema, Morrow, & Fredrickson, 1993; Vickers & Vogeltanzs-Holm, 2003). The current study did not provide evidence for the mediation path whereby mindfulness would contribute to changes in depressive symptoms through the mediation effect of changes in rumination.

The current study was powered to detect mediation effects only for large mediation paths between the predictor and the mediator (path *a*) and between the mediator and the outcome variable (path *b*) (Fritz & MacKinnon, 2007). Therefore, future studies should consider larger sample sizes to properly test for mediation effects (see Fritz & MacKinnon, 2007).

In addition, the fact that there were no significant differences between the mindfulness and relaxation interventions on changes in rumination, and on changes in depressive symptoms is likely to have contributed to the non-significance of the mediation effects.

5.2 Strengths of the research

The current study has a number of strengths. First, the inclusion of an active control intervention that was comparable in length and researcher contact with the experimental intervention adds to the literature on the effectiveness of mindfulness-based interventions.

Second, the randomisation of participants ensured that any differences between the groups (at baseline) were due to chance.

Third, the use of a clinical sample of individuals with Major Depressive Disorder (diagnosed with the SCID-I) extends the empirical literature on the comparative effects of mindfulness *and* relaxation interventions in depression, as previous studies have focused on undergraduate and community samples (Jain et al., 2007; Tang et al., 2007).

Fourth, the design of the study ensured each participant was seen individually for two face-to-face assessments. The individual nature of the intervention (as opposed to a group format) reduced the likelihood of potential non-specific effects (e.g., social support within the group).

Fifth, the study explored predictors of change in depressive symptoms, and thus contributes to understanding mechanisms of change in depression.

Lastly, there is a need in the literature to disentangle the different components of MBCT (e.g. mindfulness, psychoeducation, nonspecific group effects) in order to identify active components. By using a mindfulness intervention that excluded the other components of MBCT, the current study added precision to the investigation of the effectiveness of mindfulness interventions.

5.3 Limitations of the research

The present study has several limitations. First, is the lack of a no-treatment group, which would have enabled to examine the effects of researcher attention, expectation of change, and other unspecific factors that might have served as confounding variables. It is possible that the reduction in depressive symptoms from pre to post-intervention was due in part or full to unspecific factors, rather than to the interventions- for example, an improvement in morale might have contributed

to an improvement in mood and reduction of depressive symptoms (Ilardi & Craighead, 1994). The medium to large effect sizes found in the current study are in line with early gains reported in larger studies, which some of the authors argue, are due mostly to 'unspecific' factors (Busch et al., 2006; Fennel & Teasdale, 1987; Ilardi & Craighead, 1994, 1999; Rush, Kovacs, Beck, Weissenburger, & Hollon, 1981).

Second, the current study is based on a relatively small sample of patients (N= 40), which limits the generalisability of the findings. Nevertheless, the sample size in the current study is comparable to the sample size of clinical groups in other studies (Heeren, Broeck, & Philippot, 2009; Kingston et al., 2007).

Third, the number of analyses performed might have increased the risk of a family-wise type I error. However, Bonferroni correction (which is considered conservative) was used to adjust the statistical results in the pairwise comparisons, thus reducing the likelihood that the findings were false positives.

Fourth, there is a high comorbidity between depression and anxiety (Hirschfeld, 2001). Although a measure of anxiety was included in the present study (GAD-7) and participants were screened for other mental health problems, a formal detailed assessment was not conducted for reasons of feasibility. Therefore, participants' comorbid mental health problems may have confounded the findings of the current study. Nevertheless, the sample of the current study is representative of a clinical population accessing IAPT services within the NHS, which contributes to the external validity of the study.

Fifth, detailed information about antidepressant medication (specific anti-depressant taken and dose) was not gathered. Nevertheless, patients were only included in the study if they had no change in medication within four weeks prior to their enrolment in the study and if they had no plans to change it within two weeks following study enrolment. Therefore, it is unlikely that any change in symptoms was due to medication effects.

Sixth, with the exception of one cognitive task, there was an over-reliance on self-report measures to assess symptoms and cognitive functioning, which may have led to a risk of self-report biases.

Seventh, there was no obvious study for which to power the present one. The study by Barnofer et al. (2008) was chosen because it is a clinical study that describes a mindfulness intervention for individuals with current depression. However, it is an 8-week intervention and thus more likely to lead to changes in depressive symptoms compared to the current study. This raises the possibility that

the current study might be under-powered as similar amount of change would require a greater sample size.

Eight, assessment of diagnostic status could have been conducted at post-intervention (in addition to initial assessment), which would have enabled comparisons of number of participants meeting criteria for depression before and after receiving the mindfulness and relaxation interventions. However, severity of depressive symptoms was measured at post-intervention and follow-up, and it was shown that a considerable proportion of patients reported depressive symptoms on the BDI-II that fell in the non/sub-clinical range at post-treatment and at follow-up.

Ninth, the brief duration of the interventions and follow-up are another limitation of the study. However, the fact that such brief interventions led to symptom reduction and improvement in psychological functioning are very promising findings regarding treatment of depression. Nevertheless, the key issue in depression is relapse prevention due to its recurrent nature. Therefore, and although the current findings shed some light on depression responsiveness to psychological interventions, they have limited value in terms of relapse prevention.

Lastly, there are limitations with the power calculation used in the current study. There was no published study that used comparable intervention and participants on which to base the calculation. One study that was considered for the power calculation is by Zeidan and colleagues (Zeidan, Jonhson, Diamond, David, & Goolkasian, 2010), as it uses a brief meditation intervention in comparison with an active control intervention (listening to a recorded book). However, Zeidan et al.'s study used a non-clinical sample of students, and therefore it did not match the current study.

Barnhofer et al.'s (2009) study was chosen for the power calculation because it tested a mindfulness-based intervention in a clinical sample of individuals with *current* depression. However, Barnhofer et al. compared full MBCT intervention (eight weekly classes of 2h duration plus home practice) with TAU, while the current study compared a one-week 30-min mindfulness intervention with an active control intervention. Consequently, in Barnhofer et al.'s study the magnitude of the difference between the groups was likely to be greater than in the current study, which would leave the present study underpowered. However, and considering that the differences between the two groups in the current study were all non-significant and with a negligible effect size, the possibility of failing to detect significant differences between the two groups when there were in fact differences (type II

error) is low. It is more probable that the current study was under-powered for the mediation analysis, and that a type II error might have occurred for this analysis.

5.4 Future directions of research

In order to gather further evidence for the robustness of the findings, it will be important to replicate the current study using a larger sample with greater power. In addition, future studies should consider using more extensive follow-ups, given the risk of relapse in depression.

The current study showed that brief interventions led to a reduction of symptoms over one week with the effects plateauing in the second week whilst patients were on the waitlist for psychological treatment at IAPT services. Future research is warranted to compare whether having two weeks of mindfulness or relaxation self-help prior to IAPT treatment will: (1) improve IAPT outcomes; (2) reduce required number of IAPT sessions; (3) serve to protect against depression relapse; and (4) reduce the need for psychological treatment among those for whom depressive symptoms fell in the sub-clinical range after self-help. In addition, if patients with sub-clinical depression following self-help still need treatment, it would be important to determine which treatment would be most suitable (for e.g., one with a focus on relapse prevention). The provision of brief interventions, particularly to patients on the waitlist with mild to moderate symptoms, would be in accordance with the stepped care approach used at IAPT whereby patients are initially offered low intensity interventions (such as guided self-help), only stepping up in intervention intensity if intervention at that level failed. Recent reports suggest that higher step up rates predict recovery (Gyani, Shafran, Layard, & Clark, 2013). Therefore, patients with moderate to severe symptoms (the present sample) could still be provided guided self-help interventions (whilst on the waitlist).

The current study showed that both mindfulness and relaxation groups improved, and that these interventions share some key elements, such as attention control (see section on similarities and differences between mindfulness and relaxation). In order to understand whether attention control was the core element in mindfulness and relaxation interventions, future research could compare mindfulness, relaxation, and a third active control intervention not based on attention control (such as medication or behavioural activation).

Data from the study showed that severity of depressive symptoms decreased to the non/sub-clinical range at post-treatment (30% in mindfulness and 25% in relaxation) and follow-up (32% in mindfulness and 39% in relaxation). However,

symptom remission is not the same as personal recovery, as the latter is a more holistic concept that may involve acceptance, hope, and meaningful activities, and may be more challenging and potentially take longer to attain. Future research could investigate whether holistic changes associated with personal recovery also occur following brief and self-help interventions for depression.

There was a significant reduction in practice time (from intervention to follow-up phases) in the relaxation group, whilst such difference did not occur in the mindfulness group. Future studies with longer-term designs could investigate whether it is more sustainable to practise mindfulness (compared with relaxation) in the long-term and, if so, what would be the optimal length of relaxation training.

5.5 Implications of the research

5.5.1 Conceptual implications

The present study highlights the similarities between mindfulness and relaxation, and the difficulty in distinguishing these concepts. The study showed that relaxation had similar benefits as mindfulness in the reduction of depressive symptoms, but also had similar benefits in other variables considered the key elements of mindfulness, such as attention control, decentering, self-compassion, and emotion regulation. This points to the challenge inherent in selecting a suitable active comparison treatment for mindfulness research.

If replicated in future research, these findings raise challenges for mindfulness research regarding the skills that have been conceptualised as uniquely associated with mindfulness and its practice. It is conceivable that the construct of mindfulness, the measures that assess it, or both, lack specificity. This is illustrated in the literature, where meditation has sometimes been conceptualised as a form of relaxation (Eppley, Abrams, & Shear, 1989). It is outside the scope of the current thesis to solve these questions. Nevertheless, the thesis highlights challenges in the field, thus contributing to the area of research.

The study also raises questions regarding the construct of relaxation and the cognitive skills involved in its practice. Relaxation could be conceptualised as mere distraction, in so far as it takes attention away from rumination, thus reducing depressive symptoms (Nolen-Hoeksema, 1991). However, relaxation using guided visual imagery also involves attention control and visualisation skills, and therefore it is probably more accurate to conceptualise it as a cognitive training.

5.5.2 Clinical implications

The present findings add to the growing body of evidence (Barnhofer et al., 2009; Eisendrath et al., 2008; Finucane & Mercer, 2006; Kenny & Williams, 2007) that mindfulness can be used in the treatment of current depression, and may be a valuable therapeutic intervention in the amelioration of symptoms. Mindfulness has been used as a clinical intervention as part of the full MBCT programme, which was initially indicated only for remitted depressed patients with a history of 3 or more previous depressive episodes. The current study suggests that mindfulness can also be effective as an intervention in itself (i.e., not as part of the MBCT programme), and that it has beneficial effects for a broader range of depression presentations (i.e., not just patients in remission).

The study showed that brief mindfulness and relaxation interventions led to the amelioration of depressive symptoms. Therefore, the provision of such interventions whilst patients are on the waitlist to receive psychological therapy could become available within relevant NHS services. In the current study, patients had two face-to-face sessions (although only one was an intervention session), but most of their practice was done on their own, thus the interventions were predominantly self-help with the use of audio recording. In clinical services, these interventions could potentially be provided through online therapy (e-therapy) and self-help. E-therapy and self-help have become important resources, and have shown high rates of patients' and clinicians' satisfaction (Frueh et al., 2000), as well as symptom reduction (Vernmark et al., 2010). In addition to potential patient benefit, provision of such interventions would likely be cost-effective.

Considering that the ability to decenter predicted changes in depressive symptoms during the active stage of treatment, clinical interventions for depression may incorporate a specific focus on improving decentering skills (for example, by emphasising letting go of negative thoughts and feelings) through mindfulness training (as in the current study), or other therapeutic interventions (such as CBT).

The findings of the study showed that both mindfulness and relaxation had comparable amount of change in self-compassion. Emerging theory on self-compassion (e.g., Gilbert, 2009) suggests that compassion is adaptive in the face of negative thoughts and feelings, and thus plays an important role in symptom change. Moreover, depressed patients seem to have difficulty in adopting a self-compassionate attitude (Krieger et al., 2013). Mindfulness and relaxation interventions may help individuals with depression to be more compassionate towards themselves, which may potentially contribute to symptom change.

Research has suggested that changes in emotion regulation skills are associated with changes in depressive symptoms (Berking et al., 2008). The current study suggests that emotion regulation skills, at least in the short-term, can be improved through brief mindfulness and relaxation interventions. Therefore, the implementation of these interventions may help individuals to increase their emotion regulation skills (as shown in the current study), and in turn, enhanced emotion regulation skills may facilitate treatment gains (Berking et al., 2008).

5.6 Conclusions

The study suggests meaningful clinical benefits accrue from brief mindfulness and relaxation interventions requiring minimal therapist contact for patients on waitlists to receive psychological treatment. Longer-term benefits and cost-effectiveness were not assessed. Findings point to common elements in the two interventions and to the importance of decentring and mindfulness as common processes of change.

References

Abba, N., Chadwick, P., & Stevenson, C. (2008). Responding mindfully to distressing psychosis: A grounded theory analysis. *Psychotherapy Research, 18*, 77-87.

Abramson, L. Y., Metalsky, G. I., & Alloy, L. B. (1989). Hopelessness depression: A theory-based subtype of depression. *Psychological Review, 96*, 358-372.

Abramson, L. Y., Seligman, M. E. P., & Teasdale, J. (1978). Learned helplessness in humans: Critique and reformulation. *Journal of Abnormal Psychology, 87*, 49-74.

Agee, J. D., Danoff-Burg, S., & Grant, C. A. (2009). Comparing brief stress management courses in a community sample: mindfulness skills and progressive muscle relaxation. *Explore: The Journal of Science and Healing, 5*, 104-109.

Aldao, A., Nolen-Hoeksema, S., & Schweizer (2010). Emotion-regulation strategies across psychopathology: A meta-analytic review. *Clinical Psychology Review, 30*, 217-237.

American Psychiatric Association (1994). *Diagnostic and statistical manual of mental disorders* (4th ed). Washington DC: Author.

American Psychiatric Association (2013). *Diagnostic and statistical manual of mental disorders* (5th ed). Arlington, VA: American Psychiatric Publishing.

Arch, J. J., & Craske, M. G. (2006). Mechanisms of mindfulness: Emotion regulation following a focused breathing induction. *Behaviour Research and Therapy, 44*, 1849-1858.

Baer, R. A. (2003). Mindfulness training as a clinical intervention: A conceptual and empirical review. *Clinical Psychology: Science and Practice, 10*, 125-143.

Baer, R. A., Smith, G. T., Hopkins, J., Krietemeyer, J., & Toney, L. (2006). Using self-report assessment methods to explore facets of mindfulness. *Assessment, 13*, 27-45.

Baer, R. A., Smith, G. T., Lykins, E., Button, D., Krietemeyer, J., Sauer, S., et al. (2008). Construct validity of the Five Facet Mindfulness Questionnaire in meditating and non-meditating samples. *Assessment, 15*, 329-342.

Barnhofer, T., Crane, C., Hargus, E., Amaringhe, M., Winder, R., & Williams, J. M. (2009). Mindfulness-based cognitive therapy as a treatment for chronic depression: A preliminary study. *Behaviour Research and Therapy, 47*, 366-373.

Baron, R. M. & Kenny, D. A. (1986). The moderator-mediator variable distinction in social psychological research: Conceptual, strategic, and statistical considerations. *Journal of Personality and Social Psychology, 51*, 1173-1182.

Beck, A. T. (1976). *Cognitive theory and the emotional disorders.* New York: International University Press.

Beck, A. T. Rush, A. J., Shaw, B. F., & Emery, G. (1979). *Cognitive therapy of depression.* New York: Guilford Press.

Beck, A. T., Steer, R. A., & Brown, G. K. (1996). *Beck Depression Inventory-II manual* (2nd ed.). San Antonio, TX: The Psychological Corporation.

Berking, M., Wupperman, P., Reichardt, A., Pejic, T., Dippel, A., & Znoj, H. (2008). Emotion-regulation skills as a treatment target in psychotherapy. *Behaviour Research and Therapy, 46*, 1230-1237.

Beshai, S., Dobson, K. S., Bocking, C. L. H., & Quigley, L. (2011). Relapse and recurrence prevention in depression: Current research and future prospects. *Clinical Psychology Review, 31*, 1349-1360.

Birnie, K., Speca, M., & Carlson, L. E. (2010). Exploring self-compassion and empathy in the context of Mindfulness-Based Stress Reduction (MBSR). *Stress and Health, 26*, 359-371.

Bishop, S. R., Mau, M., Shapiro, S., Carlson, L., Anderson, N. D., Carmody, J., et al. (2004). Mindfulness: A proposed operational definition. *Clinical Psychology: Science and Practice, 11*, 230-241.

Boland, R. J., & Keller, M. B. (2009). Course and outcome of depression. In I. H. Gotlib, & C. L. Hammen (Eds.), *Handbook of Depression* (pp. 23-43). New York: The Guilford Press.

Borkovec, T. D., & Costello, E. (1993). Efficacy of applied relaxation and cognitive-behavioral therapy in the treatment of generalized anxiety disorder. *Journal of Consulting and Clinical Psychology, 61*, 611-619.

Broderick, P. C. (2005). Mindfulness and coping with dysphoric mood: Contrasts with rumination and distraction. *Cognitive Therapy and Research, 29*, 501-510.

Brown, K. W., & Ryan, R. M. (2003). The benefits of being present: Mindfulness and its role in psychological well-being. *Journal of Personality and Social Psychology, 84*, 822-848.

Busch, A. M., Kanter, J. W., Landes, S. J., & Kohlenberg, R. J. (2006). Sudden gains and outcome: a broader temporal analysis of cognitive therapy for depression. *Behavior Therapy*, *37* (1), 61–8.

Butler, A. C., Chapman, J. E., Forman, E. M., & Beck, A. T. (2006). The empirical status of cognitive behavioural therapy: A review of meta-analyses. *Clinical Psychology Review, 26*, 17-31.

Cash, M., & Whittingham, K. (2010). What facets of mindfulness contribute to psychological well-being and depressive, anxious, and stress-related symptomatology. *Mindfulness, 1*, 177-182.

Caspi, A., Sugden, K. Moffitt, T. E., Taylor, A., Craig, I. W., Harrington, H. L., et al. (2003). Influence of life stress on depression: Moderation by a polymorphism in the 5-HTT gene. *Science, 301*, 386-389.

Chambers, R., Gullone, E., & Allen, N. B. (2009). Mindful emotion regulation: An integrative review. *Clinical Psychology Review, 29*, 560-572.

Chambers, R., Lo, B. C. Y., & Allen, N. B. (2008). The impact of intensive mindfulness training on attentional control, cognitive style, and affect. *Cognitive Therapy and Research, 32*, 303-322.

Cohen, J. (1990). Things I have learned (so far). *American Psychologist, 45*, 1304-1312.

Cole, D. A., & Maxwell, S. E. (2003). Testing mediational models with longitudinal data: Questions and tips in the use of structural equation modeling. *Journal of Abnormal Psychology*, *112*, 558–577.

Derryberry, D., & Reed, M. A. (2002). Anxiety-related attentional biases and their regulation by attentional control. *Journal of Abnormal Psychology, 111*, 225-236.

Dickson, K. S., Ciesla, J. A., & Reilly, L. C. (2012). Rumination, worry, cognitive avoidance, and behavioural avoidance: Examination of temporal effects. *Behavior Therapy, 43*, 629-640.

Eisendrath, S. J., Delucchi, K., Bitner, R., Fenimore, P., Smit, M., & McLane, M. (2008). Mindfulness-Based Cognitive Therapy for treatment resistant depression: A pilot study. *Psychotherapy and Psychosomatics, 77*, 319-320.

Eppley, K. R., Abrams, A. I., & Shear, J. (1989). Differential effects of relaxation techniques on trait anxiety: A meta-analysis. *Journal of Clinical Psychology, 45*, 957-974.

Feldman, G., Greeson, J., & Senville, J. (2010). Differential effects of mindful breathing, progressive muscle relaxation, and loving-kindness meditation on decentering and negative reactions to repetitive thoughts. *Behaviour Research and Therapy, 48*, 1002-1011.

Fennel, M. J. V., & Teasdale, J. D. (1987). Cognitive therapy for depression: Individual differences and the process of change. *Cognitive Therapy and Research, 11*, 253-271.

Finucane, A., & Mercer, S. (2006). An exploratory mixed methods study of the acceptability and effectiveness of mindfulness-based cognitive therapy for patients with active depression and anxiety in primary care. *BMC Psychiatry, 6* (14), 1-14.

First, M. B., Gibbon, M., Spitzer, R. L., & Williams, J. M. G. (2002). *User's guide for the Structured Clinical Interview for DSM-IV-TR Axis I Disorders*- Research Version (SCID-I for DSM-IV-TR, November 2002 Revision). Washington, DC: American Psychiatric Press.

Fresco, D. M., Moore, M. T., van Dulmen, M. H. M., Segal, Z. V., Helen Ma, S., Teasdale, J. D., & et al. (2007). Initial psychometric properties of the Experiences Questionnaire: Validation of a self-report measure of decentering. *Behavior Therapy, 38*, 234- 246.

Fresco, D. M., Segal, Z. V., Buis, T., & Kennedy, S. (2007). Relationship of posttreatment decentering and cognitive reactivity to relapse in major depression. *Journal of Consulting and Clinical Psychology, 75*, 447-455.

Frewen, P. A., Evans, E. M., Maraj, N., Dozois, D. J. A., & Partridge, K. (2008). Letting go: Mindfulness and negative automatic thinking. *Cognitive Therapy and Research, 32*, 758-774.

Fritz, M. S., & MacKinnon, D. P. (2007). Required sample size to detect the mediated effect. *Psychological Science, 18*, 233-239.

Frueh, B. C., Deitsch, S. E., Santos, A. B., Gold, P. B., Johnson, M. R., Meisler, N., et al. (2000). Procedural and methodological issues in telepsychiatry research and program development. *Psychiatric Services, 51*, 1522-1527.

Garratt, G., Ingram, R. E., Rand, K. L., & Sawalani, G. (2007). Cognitive processes in cognitive therapy: Evaluation of the mechanisms of change in the treatment of depression. *Clinical Psychology: Science and Practice, 14*, 224, 239.

Gilbert, P. (2009). *The compassionate mind.* London: Constable.

Godfrin, K. A., & van Heeringen, C. (2010). The effects of mindfulness-based cognitive therapy on recurrence of depressive episodes, mental health and quality of life: A randomized controlled study. *Behaviour Research and Therapy, 48*, 738-746.

Goodman, S. H., & Brand, S. R. (2009). Depression and early adverse experiences. In I. H. Gotlib, & C. L. Hammen (Eds.), *Handbook of Depression* (pp. 249-274). New York: The Guilford Press.

Goodwin, R. D., Kroenke, K. Hoven, C. W., Spitzer, R. L. (2003). Major depression, physical illness, and suicidal ideation in primary care. *Psychosomatic Medicine, 65*, 501-505.

Gotlib, I. H., & Hammen, C. L. (1992). *Psychological aspects of depression: Towards a cognitive-interpersonal integration.* Chichester: John Wiley & Sons.

Gratz, K. L., & Roemer, L. (2004). Multidimensional assessment of emotion regulation and dysregulation: Development, factor structure, and initial validation of the Difficulties in Emotion Regulation Scale. *Journal of Psychopathology and Behavioural Assessment, 26*, 41-54.

Gyani, A., Shafran, R., Layard, R., & Clark, D. M. (2013). Enhancing recovery rates: Lessons from year one of IAPT. *Behaviour Research and Therapy, 51*, 597-606.

Haaga, D. A. F., Dyck, M. J., & Ernst, D. (1991). Empirical status of cognitive theory of depression. *Psychological Bulletin, 110*, 215-236.

Hankin, B. L., Abramson, L. Y., Miller, N., & Haeffel, G. J. (2004). Cognitive vulnerability-stress theories of depression: Examining affective specificity in the prediction of depression versus anxiety in three prospective studies. *Cognitive Therapy and Research, 28*, 309-345.

Hargus, E., Crane, C., Barnhofer, T., & Williams, J. M. G. (2010). Effects of mindfulness on meta-awareness and specificity of describing prodromal symptoms in suicidal depression. *Emotion, 10*, 34-42.

Hayes, S. C., Strosahl, K. D., & Wilson, K. G. (1999). *Acceptance and Commitment Therapy.* New York: Guilford Press.

Hayes, S. C., Wilson, K. G., Gifford, E. V., Follette, V. M., & Strosahl, K. (1996). Experiential avoidance and behavioral disorders: A functional dimensional approach to diagnosis and treatment. *Journal of Consulting and Clinical Psychology, 64*, 1152-1168.

Heeren, A., Van Broeck, N., & Philippot, P. (2009). The effects of mindfulness on executive processes and autobiographical memory specificity. *Behaviour Research and Therapy, 47*, 403-409.

Hirschfeld, R. M. A. (2001). The comorbidity of major depression and anxiety disorders: Recognition and management in primary care. *The Primary Care Companion to The Journal of Clinical Psychiatry, 3*, 244-254.

Hofmann, S. G., Sawyer, A. T., Witt, A. A., & Oh, D. (2010). The effect of mindfulness-based therapy on anxiety and depression: A meta-analytic review. *Journal of Consulting and Clinical Psychology, 78*, 169-183.

Hollis-Walker, L., & Colosimo, K. (2011). Mindfulness, self-compassion, and happiness in non-meditators: A theoretical and empirical examination. *Personality and Individual Differences, 50*, 222-227.

Ilardi, S., & Craighead, W. (1994). The role of nonspecific factors in cognitive-behavior therapy for depression. *Clinical Psychology: Science and Practice, 1*, 138-156.

Ilardi, S., & Craighead, W. (1999). Rapid early response, cognitive modification, and nonspecific factors in cognitive behavior therapy for depression: A reply to Tang and DeRubeis. *Clinical Psychology: Science and Practice*, *6*, 295-299.

Jain, S., Shapiro, S. L., Swanick, S., Roesch, S. C., Mills, P. J., Bell, I., et al. (2007). A randomised controlled trial of mindfulness meditation versus relaxation training: Effects on distress, positive states of mind, rumination, and distraction. *Annals of Behavioral Medicine, 33*, 11-21.

James, L. R., & Brett, J. M. (1984). Mediators, moderators, and tests for mediation. *Journal of Applied Psychology*, *69*, 307-321.

Jensen, C. G., Vangkilde, S., Frokjaer, V., & Hasselbalch, S. (2012). Mindfulness training affects attention- or is it attentional effort? *Journal of Experimental Psychology, 141*, 106-123.

Jersild, A. T. (1927). Mental set and shift. *Archives of Psychology, 89*, 5-82.

Jha, A., Stanley, E. A., Kiyonaga, A., Wong, L., & Gelfand, L. (2010). Examining the protective effects of mindfulness training on working memory capacity and affective experience. *Emotion, 10*, 54-64.

Joorman, J. (2009). Cognitive aspects of depression. In I. H. Gotlib, & C. L. Hammen (Eds.), *Handbook of depression (2nd ed.),* (pp. 298-321). New York: The Guilford Press.

Jorm, A. F., Morgan, A. J., Hetrick, S. E. (2008). Relaxation for depression. *The Cochrane Database of Systematic Reviews*, 8;(4):CD007142. doi: 10.1002/14651858.CD007142.pub2

Kabat-Zinn, J. (1982). An outpatient program in behavioral medicine for chronic pain patients based on the practice of mindfulness meditation: Theoretical considerations and preliminary results. *General Hospital Psychiatry, 4*, 33-47.

Kabat-Zinn, J. (1990). *Full catastrophe living: Using the wisdom of your body and mind to face stress, pain, and illness.* New York: Delacorte.

Kabat-Zinn, J. (1994). *Wherever you go there you are: Mindfulness meditation in everyday life.* New York: Hyperion.

Kabat-Zinn, J., Massion, A. O., Kristeller, J., Peterson, L. G., Fletcher, K. E., Pbert, L., et al. (1992). Effectiveness of a meditation-based stress reduction program in the treatment of anxiety disorders. *American Journal of Psychiatry, 149*, 936-943.

Keller, M. B., Lavori, P. W., Lewis, C., E., Klerman, G. L. (1983). Predictors of relapse in major depressive disorder. *Journal of the American Medical Association, 250*, 3299-3304.

Keng, S-L., Smoski, M. J., & Robins, C. J. (2011). Effects of mindfulness on psychological health: A review of empirical studies. *Clinical Psychology Review, 31*, 1041-1056.

Kenny, M. A., & Williams, J. M. G. (2007). Treatment-resistant depressed patients show a good response to mindfulness-based cognitive therapy. *Behaviour Research and Therapy, 45*, 617-625.

Kessler, R. C., Berglund, P., Demler, O., Jin, R., Koretz, D., Merikangas, K. R., et al. (2003). The epidemiology of Major Depressive Disorder: Results from the National Comorbidity Survey Replication (NCS-R). *Journal of the American Medical Association, 289*, 3095-3105.

Kessler, R. C., & Wang, P. S. (2009). Epidemiology of depression. In I. H. Gotlib, & C. L. Hammen (Eds.), *Handbook of Depression* (pp. 5-22). New York: The Guilford Press.

Kingston, J., Chadwick, P., Meron, D., & Skinner, T. C. (2007). A pilot randomized controlled trial investigating the effect of mindfulness practice on pain tolerance, psychological well-being, and physiological activity. *Journal of Psychosomatic Research, 62*, 297-300.

Kingston, T., Dooley, B., Bates, A., Lawlor, E., & Malone, K. (2007). Mindfulness-based cognitive therapy for residual depressive symptoms. *Psychology and Psychotherapy- Theory Research and Practice, 80*, 193-203.

Krieger, T., Altenstein, D., Baettig, I., Doerig, N., & Holtforth, M. G. (2013). Self-compassion in depression: Associations with depressive symptoms, rumination, and avoidance in depressed outpatients. *Behavior Therapy, 44*, 501-513.

Kuehner, C., & Weber, I. (1999). Responses to depression in unipolar depressed patients: An investigation of Nolen-Hoeksema's response styles theory. *Psychological Medicine, 29*, 1323-1333.

Kumar, S., Feldman, G., & Hayes, A. (2008). Changes in mindfulness and emotion regulation in an exposure-based cognitive therapy for depression. *Cognitive Therapy and Research, 32*, 734-744.

Kuyken, W., Byford, S., Taylor, R. S., Watkins, E., Holden, E., White, K., et al. (2008). Mindfulness-based cognitive therapy to prevent relapse in recurrent depression. *Journal of Consulting and Clinical Psychology, 76*, 966-978.

Kuyken, W., Watkins, E., Holden, E., White, K., Taylor, R., Byford, S., et al. (2010). How does mindfulness-based therapy work? *Behaviour Research and Therapy, 48*, 1105-1112.

Lau, M. A., Segal, Z. V., & Williams, J. M. G. (2004). Teasdale's differential activation hypothesis: Implications for mechanisms of depressive relapse and suicidal behaviour. *Behaviour Research and Therapy, 42*, 1001-1017.

Levinson, D. F. (2009). Genetics of major depression. In I. H. Gotlib, & C. L. Hammen (Eds.), *Handbook of Depression* (pp. 165-186). New York: The Guilford Press.

Lewinsohn, P. M., Allen, N. B., Seeley, J. R., & Gotlib, I. H. (1999). First onset versus recurrence of depression: Differential processes of psychosocial risk. *Journal of Abnormal Psychology, 108*, 483-489.

Linehan, M. (1993). *Cognitive-behavioral treatment of borderline personality disorder.* New York: Guilford Press.

Lykins, E. L. B., & Baer, R. A. (2009). Psychological functioning in a sample of long-term practitioners of mindfulness meditation. *Journal of Cognitive Psychotherapy, 23*, 226-241.

Lyubomirsky, S., Kasri, F., & Zehm, K. (2003). Dysphoric rumination impairs concentration on academic tasks. *Cognitive Therapy and Research, 27*, 309-330.

Ma, S. H., & Teasdale, J. D. (2004). Mindfulness-based cognitive therapy for depression: Replication and exploration of differential relapse prevention effects. *Journal of Consulting and Clinical Psychology, 72*, 31-40.

MacCoon, D. G., Imel, Z. E., Rosenkranz, M. A., Sheftel, J. G., Weng, H. Y., Sullivan, J. C., et al. (2012). The validation of an active control intervention for Mindfulness Based Stress Reduction (MBSR). *Behavior Research and Therapy, 50*, 3-12.

Malinowski, P. (2013). Neural mechanisms of attentional control in mindfulness meditation. *Frontiers in Neuroscience, 7:8*. doi: 10.3389/fnins.2013.00008

Miranda, J., Persons, J. B., & Byers, C. N. (1990). Endorsement of dysfunctional beliefs depends on current mood state. *Journal of Abnormal Psychology, 99*, 237-241.

Miyake, A., Friedman, N., Emerson, M. J., Witzki, A. H., & Howerter, A. (2000). The unity and diversity of executive functions and their contributions to complex "frontal lobe" tasks: A latent variable analysis. *Cognitive Psychology, 41*, 49-100.

Moore, A., & Malinowski, P. (2009). Meditation, mindfulness, and cognitive flexibility. *Consciousness and Cognition, 18*, 176-186.

Morrow, J., & Nolen-Hoeksema, S. (1990). Effects of responses to depression on the remediation of depressive affect. *Journal of Personality and Social Psychology, 58*, 519-527.

Moulds, Kandris, Starr, & Wong (2007). The relationship between rumination, avoidance and depression in a non-clinical sample. *Behaviour Research and Therapy, 45*, 251-261.

Murray, C. J. L., & Lopez, A. D. (1997). Global mortality, disability, and the contribution of risk factors: Global Burden of Disease Study. *The Lancet, 349*, 1436-1442.

National Institute for Health and Clinical Excellence (NICE) (2009). Depression: The treatment and measurement of depression in adults. Http://www.nice.org.uk

Neff, K. D. (2003). Self-compassion: An alternative conceptualization of a healthy attitude toward oneself. *Self and Identity, 2*, 85-101.

Neff, K. D., Rude, S. S., & Kirkpatrick, K. L. (2007). An examination of self-compassion in relation to positive psychological functioning and personality traits. *Journal of Research in Personality, 41*, 908-916.

Nielsen, L., & Kaszniak, A. W. (2006). Awareness of subtle emotional feelings: A comparison of long-term meditators and nonmeditators. *Emotion, 6*, 392-405.

Nolan, S. A., Roberts, J. E., & Gotlib, I. H. (1998). Neuroticism and ruminative response style as predictors of change in depressive symptomatology. *Cognitive Therapy and Research, 22*, 445-455.

Nolan-Hoeksema, S. (1991). Responses to depression and their effects on the duration of depressive episodes. *Journal of Abnormal Psychology, 100*, 569-582.

Nolan-Hoeksema, S. (2000). The role of rumination in depressive disorders and mixed anxiety/depressive symptoms. *Journal of Abnormal Psychology, 109*, 504-511.

Nolen-Hoeksema, S., & Davis, C. G. (1999). “Thanks for sharing that”: Ruminators and their social support networks. *Journal of Personality and Social Psychology, 77*, 801-814.

Nolen-Hoeksema, S., & Morrow, J. (1991). A prospective study of depression and posttraumatic stress symptoms after a natural disaster: The 1989 Loma Prieta earthquake. *Journal of Personality and Social Psychology, 61*, 115-121.

Nolen-Hoeksema, S., & Morrow, J. (1993). The effects of rumination and distraction on naturally-occurring depressed mood. *Cognition and Emotion, 7*, 561-570.

Nolen-Hoeksema, S., Morrow, J., & Fredrickson, B. L. (1993). Response styles and the duration of episodes of depressed mood. *Journal of Abnormal Psychology, 102*, 20-28.

Nolen-Hoeksema, S., Wisco, B. E., Lyubomirsky, S. (2008). Rethinking rumination. *Perspectives on Psychological Science, 3*, 400-424.

Ólafsson, R. P., Smári, J., Guðmundsdóttir, F., Ólafsdóttir, G., Harðardóttir, H. L., & Einarsson, S. M. (2011). Self-reported attentional control with the Attentional Control Scale: Factor structure and relationship with symptoms of anxiety and depression. Journal of Anxiety Disorders, 25, 777-782.

Ortner, C. N. M., Kilner, S. J., & Zelazo, P. D. (2007). Mindfulness meditation and reduced emotional interference on a cognitive task. *Motivation and Emotion, 31*, 271-283.

Ost, L. G., & Breitholtz, E. (2000). Applied relaxation vs cognitive therapy in the treatment of generalized anxiety disorder. *Behaviour Research and Therapy, 38*, 777-790.

Piccinelli, M. & Wilkinson, G. (2000). Gender differences in depression: Critical review. *The British Journal of Psychiatry, 177*, 486-492.

Piet, J. & Hougaard, E. (2011). The effect of mindfulness-based cognitive therapy for prevention of relapse in recurrent major depressive disorder: A systematic review and meta-analysis. *Clinical Psychology Review, 31*, 1032-1040.

Preacher, K. J., & Hayes, A. F. (2004). SPSS and SAS procedures for estimating indirect effects in simple mediation models. *Behavior Research Methods, Instruments, & Computers*, *36*, 717–731.

Raes, F., Dewulf, D., Van Heeringen, C., & Williams, J. M. G. (2009). Mindfulness and reduced cognitive reactivity to sad mood: Evidence from a correlational study and a non-randomized waiting list controlled study. *Behaviour Research and Therapy, 47*, 623-627.

Raes, F., Pommier, E., Neff, K. D., & Van Gucht, D. (2011). Construction and factorial validation of a short form of the Self-Compassion Scale. *Clinical Psychology & Psychotherapy, 18*, 250-255.

Raes, F., & Williams, J. M. G. (2010). The relationship between mindfulness and uncontrollability of ruminative thinking. *Mindfulness, 1*, 199-203.

Rees, B. L. (1995). Effect of relaxation with guided imagery on anxiety, depression, and self-esteem in primiparas. *Journal of Holistic Nursing, 13*, 255-276.

Richter, P., Werner, J., Heerlein, A. s, Kraus, A., & Sauer, H. (1998). On the validity of the Beck Depression Inventory. *Psychopathology*, *31*, 160–168.

Romans, S. E., Tyas, J., Cohen, M. M., & Silverstone, T. (2007). Gender differences in the symptoms of Major Depressive Disorder. *The Journal of Nervous and Mental Disease, 195*, 905-911.

Rush, A. J., Kovacs, M., Beck, A. T., Weissenburger, J., & Hollon, S. D. (1981). Differential effects of cognitive therapy and pharmacotherapy on depressive symptoms. *Journal of Affective Disorders, 3*, 221-229.

Scher, C. D., Ingram, R. E., & Segal, Z. V. (2005). Cognitive reactivity and vulnerability: Empirical evaluation of construct activation and cognitive diatheses in unipolar depression. *Clinical Psychology Review, 25*, 487-510.

Scheufele, P. M. (2000). Effects of progressive relaxation and classical music on measurements of attention, relaxation, and stress responses. *Journal of Behavioral Medicine, 23*, 207-228.

Segal, Z. V., Gemar, M., & Williams, S. (1999). Differential cognitive response to a mood challenge following successful cognitive therapy or pharmacotherapy for unipolar depression. *Journal of Abnormal Psychology, 108*, 3-10.

Segal, Z. V., Williams, J. M. G., & Teasdale, J. D. (2002). *Mindfulness-based cognitive therapy for depression.* New York: Guilford Press.

Seligman, M. E. P. (1975). *Helplessness: On depression, development, and death.* San Francisco: Freeman.

Shahar, B., Britton, W. B., Sbarra, D., Figueredo, A. J., & Bootzin, R. R. (2010). Mechanisms of change in mindfulness-based cognitive therapy for depression: Preliminary evidence from a randomized controlled trial. *International Journal of Cognitive Therapy, 3*, 402-418.

Shapiro, S. L., Astin, J. A., Bishop, S. R., & Cordova, M. (2005). Mindfulness-based stress reduction for health care professionals: Results from a randomized trial. *International Journal of Stress Management*, 12, 164-176.

Solomon, D. A., Keller, M. B., Leon, A. C., Mueller, T. I., Lavori, P. W., Shea, M. T., et al. (2000). Multiple recurrences of major depressive disorder. *American Journal of Psychiatry, 157*, 229-233.

Solomon, D. A., Leon, A. C., Endicott, J., Mueller, T. I., Coryell, W., Shea, M. T., et al. (2004). Psychosocial impairment and recurrence of major depression. *Comprehensive Psychiatry, 45*, 423-430.

Spector, A., & Biederman, I. (1976). Mental set and mental shift revisited. *American Journal of Psychology, 89*, 669-679.

Spitzer, R. L., Kroenke, K., Williams, J. B., & Lowe, B. (2006). A brief measure for assessing generalised anxiety disorder: The GAD-7. *Archives of Internal Medicine, 166*, 1092-1097.

Tang, Y. Y., Lu, Q., Geng, X., Stein, E. A., Yang, Y., & Posner, M. I. (2010). Short-term meditation induces white matter changes in the anterior cingulate. *Proceedings of the National Academy of Sciences of the United States of America, 107*, 15649-15652.

Tang, Y. Y., Ma, Y., Fan, Y., Feng, H., Wang, J., Feng, S., et al. (2009). Central and autonomic nervous system interaction is altered by short-term meditation. *Proceedings of the National Academy of Sciences of the United States of America, 106*, 8865-8870.

Tang, Y. Y., Ma, Y., Wang, J., Fan, Y., Feng, S., Lu, Q., et al. (2007). Short-term meditation training improves attention and self-regulation. *Proceedings of the National Academy of Sciences of the United States of America, 104*, 17152-17156.

Teasdale, J. D. (1988). Cognitive vulnerability to persistent depression. *Cognition and Emotion, 2*, 247-274.

Teasdale, J. D., Moore, R. G., Hayhurst, H., Pope, M., Williams, S., & Segal, Z. V. (2002). Metacognitive awareness and prevention of relapse in depression: Empirical evidence. *Journal of Consulting and Clinical Psychology, 70*, 275-287.

Teasdale, J. D., Segal, Z. V., Williams, J. M. G., Ridgeway, V. A., Soulsby, J. M., & Lau, M. A. (2000). Prevention of relapse/recurrence in major depression by mindfulness-based cognitive therapy. *Journal of Consulting and Clinical Psychology, 68*, 615-623.

Thase, M. E. (2009). Neurobiological aspects of depression. In I. H. Gotlib, & C. L. Hammen (Eds.), *Handbook of Depression* (pp. 187-217). New York: The Guilford Press.

Thomsen, D. K. (2006). The association between rumination and negative affect: A review. *Cognition and Emotion, 20*, 1216-1235.

Trew, J. L. (2011). Exploring the roles of approach and avoidance in depression: An integrative model. *Clinical Psychology Review, 31*, 1156-1168.

Treynor, W., Gonzalez, R., & Nolen-Hoeksema, S. (2003). Rumination reconsidered: A psychometric analysis. *Cognitive Therapy and Research, 27*, 247-259.

Van Dam, N. T., Sheppard, S. C., Forsyth, J. P., & Earleywine, M. (2011). Self-compassion is a better predictor than mindfulness of symptom severity and quality of life in mixed anxiety and depression. *Journal of Anxiety Disorders, 25*, 123-130.

Vernmark, K., Lenndin, J., Bjärehed, J., Carlsson, M., Karlsson, J., Öberg, J., et al. (2010). Internet administered guided self-help versus individualized e-mail therapy: A randomized trial of two versions of CBT for major depression. *Behaviour Research and Therapy, 48*, 368-376.

Vickers, K. S., & Vogeltanz-Holm, N. D. (2003). The effects of rumination and distraction tasks on psychophysiological responses and mood in dysphoric and nondysphoric individuals. *Cognitive Therapy and Research, 27*, 331-348.

Ward, A., Lyubomirsky, S., Sousa, L., & Nolen-Hoeksema, S. (2003). Can't quite commit: Rumination and uncertainty. *Personality and Social Psychology Bulletin, 29*, 96-107.

Watkins, E., & Baraccia, S. (2002). Rumination and social problem-solving in depression. *Behaviour Research and Therapy, 40*, 1179-1189.

Watkins, E., Scott, J., Wingrove, J., Rimes, K., Bathurst, N., Steiner, H., et al. (2007). Rumination-focused cognitive behaviour therapy for residual depression: A case series. *Behaviour Research and Therapy, 45*, 2144-2154.

Wenzlaff, R. M., & Luxton, D. D. (2003). The role of thought suppression in depressive rumination. *Cognitive Therapy and Research, 27*, 293-308.

Williams, J. M. G. (2008). Mindfulness, depression, and modes of mind. *Cognitive Therapy and Research, 32*, 721-733.

Williams, M. J., Crane, C., Barnhofer, T., Brennan, K., Duggan, D. S., Fennell, M. J. V., et al. (2014). Mindfulness-based cognitive therapy for preventing relapse in recurrent depression: A randomised dismantling trial. *Journal of Consulting and Clinical Psychology, 82*, 275-286.

Williams, M. J., Dalgleish, T., Karl, A., & Kuyken, W. (2014). Examining the factor structures of the five facet mindfulness questionnaire and the self-compassion scale. Psychological Assessment (ahead of print).

Williams, M., Teasdale J., Segal Z., & Kabat-Zinn, J. (2012). *The Mindful Way Through Depression: Freeing Yourself from Chronic Unhappiness.* New York: The Guildford Press.

Zeidan, F., Jonhson, S. K., Diamond, B. J., David, Z., & Goolkasian, P. (2010). Mindfulness meditation improves cognition: Evidence of brief mental training. *Consciousness and Cognition, 19*, 597-605.

Zimmerman, M., Chelminski, I., & McDermut, W. (2002). Major depressive disorder and axis I diagnostic comorbidity. *Journal of Clinical Psychiatry, 63*, 187-193.

Zisook, S., Lesser, I., Stewart, J. W., Wisnieswki, S. R., Balasubramani, G. K., Fava, M., et al. (2007). Effect of age at onset on the course of Major Depressive Disorder. *American Journal of Psychiatry, 164*, 1539-1546.

Appendices

A1: National Research Ethics Service (NRES) approval

Appendix B1: Participant Information Sheet

Institute of Psychiatry

at The Maudsley

DClinPsy
Institute of Psychiatry
Addiction Sciences Building
4 Windsor Walk

South London and Maudsley NHS
NHS Foundation Trust

KING'S College LONDON
University of London

January 2013 /Version 2
12/LO/1952

The effects of mindfulness and relaxation training in reducing vulnerability for depression

INFORMATION SHEET

You are being invited to take part in a research study about psychological treatment of depression. Before you decide whether to take part, please take time to read the following information carefully. Please ask if there is anything that is not clear or if you would like more information.

1. What is the purpose of the study?

Depression can be a very debilitating disorder, affecting many areas of people's lives. In this study, we are testing two brief interventions for people with depression that are aimed at reducing stress, one of which will use meditation and one of which will consist of relaxation.

2. Why have I been chosen?

We are asking people who are currently experiencing depressive symptoms to participate in the study. This will occur while you are on the wait list to receive formal psychological therapy at IAPT services. Therefore, this is an intervention you will be able to have *in addition* to your formal treatment.

3. Do I have to take part?

Participation in the study is entirely voluntary and you can refuse to participate or withdraw at any time and without giving a reason. If you decide not to take part, this will not affect your present or future treatment in the National Health Service.

4. What do I have to do if I agree to take part?

If you agree to take part, you will be asked to participate in five parts of research:
First, complete a brief interview over the phone to establish whether you fit the criteria for the study (10-15 min).
Second, attend a baseline session at the Institute of Psychiatry where you will be asked to complete a few self-report questionnaires and to have *either* a mindfulness or a relaxation intervention (this session should last about 1h-1h15, including the intervention that lasts 30 minutes).
Third, practice either mindfulness or relaxation for 30 minutes/ day for the next 6 days using a CD to guide you (3h in total).

Fourth, attend a second assessment session in which you will be asked to complete the same self-report questionnaires (30 min).
F*ifth*, complete a self-report questionnaire regarding your mood and symptoms via email, one week after (20 min).
You will be reimbursed with £20 as a contribution to your travel expenses. This will be handed out at the end of the two assessments.

5. Can you tell me more details about the mindfulness and relaxation interventions?
Both mindfulness and relaxation have been shown to help ameliorate symptoms of depression. Mindfulness is a practice of attention and awareness that uses meditation techniques, while relaxation can help coping with stress. The relaxation intervention will use visual guided imagery to guide the participant into relaxing.
A CD will be used to deliver the interventions and the researcher will be with participants whilst they listen to the CD. The CD will then be given to participants so they can practice at home.

6. What are the possible benefits from the research?
We hope that receiving one of the two interventions (mindfulness or relaxation) will be of direct benefit to you, as a sufferer of depression. The research aims to establish whether these interventions are effective for reducing depressive symptoms, and also to identify the mechanisms of change.

7. Will my taking part in this study be kept confidential?
All information that you give as part of the research will be kept strictly confidential and will only be accessed by the researchers. All materials and data will be given an anonymous code that is used in data analysis. Nothing is reported that might identify individuals.

8. What will happen to the results of the research study?
The results will be published in academic journals and presented at conferences. Service user sites will also publish the main findings. No personal information will be identified in any publication of the results. If you would like a summary of the results, we can send you paper copy.

9. Who has reviewed the study?
This research has been reviewed and approved by the Institute of Psychiatry/South London and Maudsley Research Ethics Committee. The research is part of an educational qualification.

10. Where can I get more information?
If you have any further questions, please feel free to call or email the chief investigator at any time using the details below.

Many thanks for your interest in this research.
Chief investigator:
Dr Ana Costa
Clinical Psychologist in training
Tel: 0207 848 5018
ana.a.costa@kcl.ac.uk

Appendix B2: Participant Consent Form

Institute of Psychiatry

at The Maudsley

South London and Maudsley NHS
NHS Foundation Trust

Version 1: Nov 12
REC ref: 12/LO/1952

CONSENT FORM

Study Title: The effects of mindfulness and relaxation training in reducing vulnerability to depression

Researcher: Ana Costa

Participant number:

Please tick following boxes:

1. I confirm that I have read and understand the information sheet dated for the above study and have had the opportunity to ask questions. ☐

2. I understand that my participation is voluntary and that I am free to withdraw at any time, without giving any reason, and without my medical care or legal rights being affected. ☐

3. I understand that the information I provide will be collected fairly, will remain secure and confidential, and held no longer than necessary for the purposes of this research. ☐

4. I agree to take part in the above study. ☐

Name of participant: Date: Signature:

Contact details:_____

_____ Tel:_____

E-mail address: _____

Patient copy/Researcher copy
PLEASE KEEP YOUR COPY OF THE INFORMATION SHEET AND CONSENT FORM DOCUMENT. (ONE COPY WILL BE RETAINED BY THE RESEARCHER)

Appendix C1: Demographics questionnaire

Institute of Psychiatry

at The Maudsley

DClinPsy
Institute of Psychiatry
Addiction Sciences Building
4 Windsor Walk
London, SE5 8AF

KING'S College LONDON
University of London

South London and Maudsley NHS
NHS Foundation Trust

The effects of mindfulness and relaxation training in reducing vulnerability for depression

Please complete the following details:

Name:

Age:

Ethnicity:

Occupation:

Marital status:

Education (highest degree):

Appendix C2: SCID-I- Current Major Depressive Episode

Appendix C3: BDI-II

Appendix C4: GAD-7

Appendix C5: Five Facets Mindfulness Questionnaire (FFMQ)

Please rate each of the following statements using the scale provided. Write the number in the blank that best describes <u>your own opinion</u> of what is <u>generally true for you</u>.

1	2	3	4	5
never or very rarely true	**rarely true**	**sometimes true**	**often true**	**very often or always true**

____ When I'm walking, I deliberately notice the sensations of my body moving.

____ I'm good at finding words to describe my feelings.

____ I criticize myself for having irrational or inappropriate emotions.

____ I perceive my feelings and emotions without having to react to them.

____ When I do things, my mind wanders off and I'm easily distracted.

____ When I take a shower or bath, I stay alert to the sensations of water on my body.

____ I can easily put my beliefs, opinions, and expectations into words.

____ I don't pay attention to what I'm doing because I'm daydreaming, worrying, or otherwise distracted.

____ I watch my feelings without getting lost in them.

____ I tell myself I shouldn't be feeling the way I'm feeling.

____ I notice how foods and drinks affect my thoughts, bodily sensations, and emotions.

____ It's hard for me to find the words to describe what I'm thinking.

____ I am easily distracted.

____ I believe some of my thoughts are abnormal or bad and I shouldn't think that way.

____ I pay attention to sensations, such as the wind in my hair or sun on my face.

____ I have trouble thinking of the right words to express how I feel about things.

____ I make judgments about whether my thoughts are good or bad.

1	2	3	4	5
never or very rarely true	**rarely true**	**sometimes true**	**often true**	**very often or always true**

____ I find it difficult to stay focused on what's happening in the present.

____ When I have distressing thoughts or images, I "step back" and am aware of the thought or image without getting taken over by it.

____ I pay attention to sounds, such as clocks ticking, birds chirping, or cars passing.

____ In difficult situations, I can pause without immediately reacting.

____ When I have a sensation in my body, it's difficult for me to describe it because I can't find the right words.

____ It seems I am "running on automatic" without much awareness of what I'm doing.

____ When I have distressing thoughts or images, I feel calm soon after.

____ I tell myself that I shouldn't be thinking the way I'm thinking.

____ I notice the smells and aromas of things.

____ Even when I'm feeling terribly upset, I can find a way to put it into words.

____ I rush through activities without being really attentive to them.

____ When I have distressing thoughts or images I am able just to notice them without reacting.

____ I think some of my emotions are bad or inappropriate and I shouldn't feel them.

____ My natural tendency is to put my experiences into words.

____ When I have distressing thoughts or images, I just notice them and let them go.

____ I do jobs or tasks automatically without being aware of what I'm doing.

____ When I have distressing thoughts or images, I judge myself as good or bad, depending what the thought/image is about.

____ I pay attention to how my emotions affect my thoughts and behaviour.

____ I can usually describe how I feel at the moment in considerable detail.

1	2	3	4	5
never or very rarely true	**rarely true**	**sometimes true**	**often true**	**very often or always true**

____ I find myself doing things without paying attention.

____ I disapprove of myself when I have irrational ideas.

____ I notice visual elements in art or nature, such as colours, shapes, textures, or patterns of light and shadow.

Appendix C6: Ruminative Responses Scale

People think and do many different things when they feel sad, blue, or depressed. Please read each of the items below and indicate whether you Never, Sometimes, Often, or Always think or do each one when you feel sad, down, or depressed. Circle the right number. Please indicate what you *generally* do, not what you *think* you should do.

		Never	Sometimes	Often	Always
1.	I think about how alone I feel.	1	2	3	4
2.	I think "I won't be able to do my job if I don't snap out of this".	1	2	3	4
3.	I think about my feelings of fatigue and achiness.	1	2	3	4
4.	I think about how hard it is to concentrate.	1	2	3	4
5.	I think "What am I doing to deserve this?"	1	2	3	4
6.	I think about how passive and unmotivated I feel.	1	2	3	4
7.	I analyze recent events to try to understand why I am depressed.	1	2	3	4
8.	I think about how I don't seem to feel anything anymore.	1	2	3	4
9.	I think "Why can't I get going?"	1	2	3	4
10.	I think "Why do I always react this way?"	1	2	3	4
11.	I go away by myself and think about why I feel this way.	1	2	3	4
12.	I write down what I am thinking and analyze it.	1	2	3	4
13.	I think about a recent situation, wishing it had gone better.	1	2	3	4
14.	I think "I won't be able to concentrate if I keep feeling this way."	1	2	3	4
15.	I think "Why do I have problems other people don't have?"	1	2	3	4
16.	I think "Why can't I handle things better?"	1	2	3	4
17.	I think about how sad I feel.	1	2	3	4
18.	I think about all my shortcomings, failings, faults, and mistakes.	1	2	3	4
19.	I think about how I don't feel up to doing anything.	1	2	3	4
20.	I analyze my personality to try to understand why I am depressed.	1	2	3	4
21.	I go somewhere alone to think about my feelings.	1	2	3	4
22.	I think about how angry I am with myself.	1	2	3	4

C7: Self-Compassion Scale- short-form

HOW I TYPICALLY ACT TOWARDS MYSELF IN DIFFICULT TIMES

Please read each statement carefully before answering. To the left of each item, indicate how often you behave in the stated manner, using the following scale:

Almost never				Almost always
1	2	3	4	5

_____1. When I fail at something important to me I become consumed by feelings of inadequacy.

_____2. I try to be understanding and patient towards those aspects of my personality I don't like.

_____3. When something painful happens I try to take a balanced view of the situation.

_____4. When I'm feeling down, I tend to feel like most other people are probably happier than I am.

_____5. I try to see my failings as part of the human condition.

_____6. When I'm going through a very hard time, I give myself the caring and tenderness I need.

_____7. When something upsets me I try to keep my emotions in balance.

_____8. When I fail at something that's important to me, I tend to feel alone in my failure

_____9. When I'm feeling down I tend to obsess and fixate on everything that's wrong.

_____10. When I feel inadequate in some way, I try to remind myself that feelings of inadequacy are shared by most people.

_____11. I'm disapproving and judgmental about my own flaws and inadequacies.

_____12. I'm intolerant and impatient towards those aspects of my personality I don't like.

C8: Experiences Questionnaire

Please read each statement carefully before answering. To the left of each item, indicate how often you behave in the stated manner, using the following scale:

Never				All the time
1	2	3	4	5

_____1. I think about what will happen in the future.

_____2. I remind myself that thoughts aren't facts.

_____3. I am better able to accept myself as I am.

_____4. I notice all sorts of little things and details in the world around me.

_____5. I am kinder to myself when thing go wrong.

_____6. I can slow my thinking at times of stress.

_____7. I wonder what kind of person I really am.

_____ 8. I am not so easily carried away by my thoughts and feelings.

_____9. I notice that I don't take difficulties so personally.

_____10. I can separate myself from my thoughts and feelings.

_____11. I analyze why things turn out the way they do.

_____12. I can take time to respond to difficulties.

_____13. I think over and over again about what others have said to me.

_____14. I can treat myself kindly.

_____15. I can observe unpleasant feelings without being drawn into them.

_____16. I have the sense that I am fully aware of what is going on around me and inside me.

_____17. I can actually see that I am not my thoughts.

_____18. I am consciously aware of a sense of my body as a whole.

_____19. I think about the ways in which I am different from other people.

_____20. I view things from a wider perspective.

C9: Difficulties in Emotion Regulation Scale

Appendix C10: Attention Control Scale

Please circle the appropriate number.

	Almost never	Some times	Often	Always
It is hard for me to break from one way of thinking about something and look at it from another point of view.	1	2	3	4
After being interrupted or distracted, I can easily shift my attention back to what I was doing before.	1	2	3	4
I can quickly switch from one task to another.	1	2	3	4
When I need to concentrate and solve a problem, I have trouble focusing my attention.	1	2	3	4
It is easy for me to read or write while I'm also talking on the phone.	1	2	3	4
I have a hard time concentrating when I'm excited about something.	1	2	3	4
It's very hard for me to concentrate on a difficult task when there are noises around.	1	2	3	4
I can become interested in a new topic very quickly when I need to.	1	2	3	4
My concentration is good even if there is music in the room around me.	1	2	3	4
When concentrating, I can focus my attention so that I become unaware of what's going on in the room around me.	1	2	3	4
When concentrating I ignore feelings of hunger or thirst.	1	2	3	4
I have a hard time coming up with new ideas quickly.	1	2	3	4
It is easy for me to alternate between two different tasks.	1	2	3	4
When I am reading or studying, I am easily distracted if there are people talking in the same room.	1	2	3	4
I have trouble carrying on two conversations at once.	1	2	3	4
When a distracting thought comes to mind, it is easy for me to shift my attention away from it.	1	2	3	4

	Almost never	Some times	Often	Always
When I am working hard on something, I still get distracted by events around me.	1	2	3	4
It is difficult for me to coordinate my attention between the listening and writing required when taking notes during lectures.	1	2	3	4
When trying to focus my attention on something, I have difficulty blocking out distracting thoughts.	1	2	3	4
It takes me a while to get really involved in a new task.	1	2	3	4

Appendix C11: Plus-Minus Task

Please add 3 to numbers in list 1; please subtract 3 to numbers in list 2; please alternate between adding and subtracting 3 to numbers in list 3.

List 1	List 2	List 3
10_____	11_____	12_____
13_____	14_____	15_____
16_____	17_____	18_____
19_____	20_____	21_____
22_____	23_____	24_____
25_____	26_____	27_____
28_____	29_____	30_____
31_____	32_____	33_____
34_____	35_____	36_____
37_____	38_____	39_____
40_____	41_____	42_____
43_____	44_____	45_____
46_____	47_____	48_____
49_____	50_____	51_____
52_____	53_____	54_____
55_____	56_____	57_____
58_____	59_____	60_____
61_____	62_____	63_____
64_____	65_____	66_____
67_____	68_____	69_____
70_____	71_____	72_____
73_____	74_____	75_____
76_____	77_____	78_____
79_____	80_____	81_____
82_____	83_____	84_____
85_____	86_____	87_____
88_____	89_____	90_____
91_____	92_____	93_____
94_____	95_____	96_____
97_____	98_____	99_____

Appendix C12: Mindfulness intervention log-book

Participant initials:

Please complete the following log-book, by writing the amount of time (in minutes) you practise the mindfulness intervention in the next 6 days. If possible, we would like you to practise the mindfulness intervention for 30 minutes/ day for the next 6 days, before you attend your last session at the Institute of Psychiatry, King's College London.

	Monday	**Tuesday**	**Wednesday**	**Thursday**	**Friday**	**Saturday**	**Sunday**
Date (Day/Month/Year)							
Amount of time practised (in minutes)							

If you have any queries, do not hesitate to contact us at: ana.a.costa@kcl.ac.uk

Appendix C13: Relaxation intervention log-book

Participant initials:

Please complete the following log-book, by writing the amount of time (in minutes) you practise the relaxation intervention in the next 6 days. If possible, we would like you to practise the relaxation for 30 minutes/ day for the next 6 days, before you attend your last session at the Institute of Psychiatry, King's College London.

	Monday	**Tuesday**	**Wednesday**	**Thursday**	**Friday**	**Saturday**	**Sunday**
Date (Day/Month/Year)							
Amount of time practised (in minutes)							

If you have any queries, do not hesitate to contact us at: ana.a.costa@kcl.ac.uk

Service Evaluation Project

An Evaluation of a Trainee-Run Perinatal Psychological Therapy Service

Supervised by Dr Rachel Mycroft

Table of Contents

List of Tables

List of Figures

1.0 Abstract

Introduction: The current study aims to evaluate the performance of the new Perinatal Psychological Therapy Service at King's Hospital, which provides psychological assessments and interventions to women suffering from mental health problems who are either pregnant or had their baby in the last 12 months. The service had a temporary nature, running from April to September 2012 and was provided by two Trainee Clinical Psychologists each doing a clinical day per week. The study aims to evaluate the service in relation to client satisfaction, referrer satisfaction, and treatment outcomes both in terms of participants' mental health and bonding with their baby.

Method: Seven women suffering from a range of mental health problems (including depression, anxiety, panic, and PTSD) completed self-reported questionnaires regarding their mental health and bonding with their baby prior to receiving psychological treatment and again after they received treatment. In addition, women were asked to complete a measure of client satisfaction at the end of treatment, which evaluated aspects of the treatment received, including satisfaction with the psychological therapy provided, care plan, and therapist. Referrers were also asked to complete a measure of referrer satisfaction, which measured satisfaction with the assessment and treatment provided to the clients they had referred to the service.

Results: At the end of treatment, women's mental health improved and their bonding with their baby became stronger. All women rated the service positively and more than two thirds said they would recommend it to a friend in a similar situation. Moreover, all referrers reported being "very satisfied" with their overall experience of referring clients to the service.

Discussion: Considering the improved mental health outcomes in the current study, and the scarcity of specialist perinatal services, the provision of further perinatal services that deliver psychological therapies might be considered.

2.0 Introduction

2.1 Antenatal and Postnatal Mental Health

2.1.1 Mental disorders during pregnancy and the post-natal period

Pregnancy is a major life event accompanied by hormonal changes, which may increase the vulnerability for the onset or return of mental health disorders. Some women may experience mental health problems for the first time during pregnancy, while others with a history of mental disorders may be at increased risk for its recurrence, maintenance, or exacerbation (Bennett, Einarson, Taddio, Koren, & Einarson, 2004).

Common mental health problems during the perinatal period include depression and anxiety disorders, such as panic disorder, OCD, and PTSD. There is now evidence that these disorders may occur not only after birth (post-natally), but also during pregnancy (pre-natally). Mental health problems during the perinatal period are often under-estimated, undiagnosed, and therefore not treated (Apter, Devouche, & Gratier, 2011). Moreover, there are common false beliefs about perinatal mental health disorders, which include the idea that their symptoms and effects are less severe and go away naturally, that they are due to hormones, and that they carry an inevitable risk of future recurrence (NICE, 2007). These beliefs are misleading, and can lead to limited access to adequate treatment with potential negative effects on the woman and the baby.

2.1.2 Prevalence of perinatal disorders

The overall prevalence of common mental disorders in high income countries is 10% during pregnancy and 13% after childbirth (O'hara & Swain, 1996). However, these rates are substantially higher in low and lower-middle income countries, where the prevalence of these disorders during pregnancy is 15.6%, and after childbirth is 19.8% (Fisher et al., 2012). In addition to country, prevalence rates of perinatal mental health disorders may vary according to differences in study design, outcome measures, sample examined, and length of follow-up period at post-birth.

The prevalence of depression during pregnancy is 7.4% in the first trimester, 12.8% in the second, and 12.0% in the third (Bennett et al., 2004). The rate of depression during the first trimester is similar to that observed in the general female population, whereas the rates in the second and third trimesters are nearly double that rate, which may be a result of the greater demands of advanced pregnancy. The prevalence rate of depression in the post-natal period has been

estimated to be 8.7% at 3 months, 8.8% at 6 months, and 5.2% at 12 months after delivery, which is similar to the rate in the general population (Cooper, Campbell, Day, Kennerley, & Bond, 1988).

The prevalence of anxiety disorders during pregnancy (at 18 weeks gestation) was found to be 14.6%, but this rate decreased to 8% at 8 weeks post-natally (Heron et al., 2004), therefore two thirds of women reporting anxiety during pregnancy reported anxiety post-natally. Anxiety disorders are often comorbid with depression, and this relationship also applies during the perinatal period, which has implications for the identification and management of anxiety disorders during this period. For example, OCD symptoms have been found to be more common amongst women who were depressed post-natally than amongst those who were not (41% versus 6%) (Abramowitz, Schwartz, Moore, & Luenzmann, 2003).

The prevalence of PTSD was estimated to range from 2.8% to 5.6% at 6 weeks post-partum, but this was reduced to 1.5% at 6 months post-partum (Olde, van der Hart, Kleber, & van Son, 2006), which is consistent with the usual course of PTSD and its high remittance rate after the traumatic event.

2.1.3 Aetiology of perinatal disorders

Postnatal depression may appear only after birth; however, it is often the continuation of prenatal depression inadequately recognised and treated during pregnancy. The risk of relapse after a subsequent pregnancy, when there is a history of untreated postnatal depression, is 50% (Apter et al, 2011).

A prospective study of 825 women found antenatal mood to be a significant predictor of post-natal mood. Variables such as social class and education were not found to be related to women's emotional well-being (Green, 1990). These findings were corroborated by a population-based study of 1,863 women where it was found that poor pre-pregnancy mental health and poor antepartum mental health were both predictors of postpartum mental health problems (Witt et al., 2011). A large prospective study of a community sample of 8,323 women has shown that postnatal depression was preceded by antenatal depression and, similarly, postnatal anxiety was preceded by antenatal anxiety. Moreover, antenatal anxiety predicted postnatal depression, even after controlling for antenatal depression (Heron et al., 2004).

In addition to a previous history of mental health problems, self-perceived distress during pregnancy has been found to be associated with maternal depression after birth (Martini, Knappe, Beesdo-Baum, Lieb, & Wittchen, 2010). Moreover, other

psychosocial variables were found to be associated with postpartum depression and other mental health problems. These include postpartum complications affecting the mother or the baby, lack of social support and care during the postpartum period, unemployment, living in a crowded household, lower occupational status, and younger age at first delivery (Faisal-Cury, Menezes, Araya, & Zugaib, 2009; Figueira, Diniz, & Filho, 2011). Accordingly, women with a history of poor mental health should be identified, treated and followed-up, as they are more susceptible to developing postpartum mental health problems.

2.1.4 Consequences of mental disorders during pregnancy and the post-natal period

Women in the antenatal or post-natal period may develop the same range of disorders as other adults. Similarly, the prognosis of mental disorders developed during pregnancy or post-natally is not significantly different from the prognosis of mental disorders developed at other times. However, the impact of mental disorders during pregnancy and the post-natal period may require more urgent intervention because of the effects on the baby, on the women's health and well-being, and her ability to function and care for her family (NICE, 2007).

On the mother

Depression during pregnancy is associated with poor health behaviours and poor attendance at antenatal clinics, pre-eclampsia, increased rate of obstetric complications, substance misuse, suicide attempts, and an increased risk of progression to post-partum depression (Bennett et al., 2004; Evans et al., 2001). Pregnant women with high levels of mood disorders and/or stress also have double the risk of preterm birth compared with those women reporting low levels of stress (Orr, James, & Prince, 2002), and have increased risk of still birth, low birth weight, and preterm delivery of their babies. Moreover, mental disorders are associated with impairment in social and personal functioning (NICE, 2007), and therefore the woman may be concerned that her mental health problems may prevent her from actively caring for herself and her baby.

On the baby

Perinatal maternal mental health problems may contribute to poor infant outcomes. Depressed mothers are less likely to provide optimal nurturance for their babies,

and their ability to respond to their baby/infant in a responsive and sensitive manner may be impaired (O'Connor et al., 2002).

Studies have examined the impact of common mental disorders (CMD) during pregnancy on the child's mental development during the first year, and it was found that there was a significant relationship between infants' reduced mental development and mothers' presence of CMD, such as anxiety, depression and psychosis (Almeida, Sa, Cunha, & Pires, 2012). These findings were corroborated by Beck (1998) who found that postnatal depression has a small, but significant effect on a child's cognitive and emotional development. It seems that maternal depression might increase the likelihood of difficulties in early mother-infant interactions, and these difficulties were found to be predictive of poorer infant cognitive development at 18 months (Murray, Fiori-Cowley, & Hooper, 1996).

There is also emerging evidence that untreated mental disorders in pregnancy may be associated with poor long-term outcomes for children beyond the immediate postnatal period. Prenatal and post-natal maternal depression and anxiety were associated with cognitive delay, as well as a range of emotional and behavioural difficulties in young children (Leis, 2012; O'Connor et al., 2002; Sinclair & Murray, 1998) and adolescents (Halligan, Murray, Martins, & Cooper, 2006).

Maternal psychosis is associated with parenting difficulties, as it affects the woman's ability to adequately care for her baby more than other severe disorders. Some of these women may require inpatient care in Mother and Baby Units (MBUs). Therefore, the negative impact of maternal mental health may affect both the mental and the physical health of the child, as it can lead to considerable neglect of the child and active physical abuse. This can eventually lead to women losing care of their baby and associated devastating emotional consequences. Therefore, identifying and treating mental health problems during pregnancy can lead to increased mental health and well being for the mothers, the baby, and positively influence the mother-baby relationship.

On the mother-baby relationship and the baby's attachment style

Mental health problems during the perinatal period can also have a negative impact on the mother-baby relationship. For example, depression is frequently associated with borderline personality disorder (BPD), and their comorbidity can reach 85% in a clinical population. Considering the nature of BPD and the emotional dysregulation associated with it, it is likely that difficulties in the mother-baby relationship will occur (Apter-Danon & Candilis, 2005).

Research has examined the impact of post-natal depression on mother-infant interactions (Murray et al., 1996). Compared to non-depressed mothers, depressed mothers were less sensitively attuned to their infants, and were more negating of infant experience. Another study examined the relationship between depressed mothers suffering from obesity and their children (Burdette, Whitaker, Kahn, & Harvey-Berino, 2003). It was found that the children were more likely to stay indoors and watch more television than the children of non-depressed mothers, suggesting that depressed mothers are less likely to plan activities for their children and may find it difficult to interact in play (Burdette et al., 2003).

There is some evidence suggesting that maternal depression has been associated with higher rates of insecure attachment (Martins & Gaffan, 2000; Murray, 1992; Toth, Cicchetti, Rogosch, & Sturge-Apple, 2009). For example, Murray (1992) reported that todlers of postnatally depressed mothers had higher prevalence of insecure attachments than todlers of non-depressed mothers. A meta-analysis of studies that compared groups of mothers with and without depression, and assessed the attachment styles of infants showed that infants of depressed mothers had significantly reduced likelihood of secure attachment and marginally raised likelihood of avoidant and disorganised attachment (Martins & Gaffan, 2000). These early difficulties in children's ability to develop a secure attachment style have been shown to contribute to the emergence of subsequent maladaptation, including negative representations of the caregiver, the self, and the self in relation to others (Toth et al., 2009). These findings suggest that interventions that aim to foster secure attachment may be pursued in order to prevent the emergence and consolidation of negative representational capacities in offspring of depressed mothers (Toth et al., 2009).

2.2 Treatment of mental health problems during pregnancy and the postnatal period

2.2.1 Psychological interventions

There is a good body of evidence regarding the efficacy of psychological interventions in a range of psychological disorders. For example, for depression CBT and IPT have been shown to be as effective as medication (NICE, 2007). These interventions provide an alternative for pregnant and breast-feeding women who might be reluctant to take medication.

A number of attempts has been made to modify psychological treatments for pregnancy and the postnatal period. O'Mahen and colleagues (2012) developed

modifications of the CBT model to suit the specific needs of women in the perinatal period, and these included an emphasis on the role of maternal beliefs, the impact of pregnancy and a new infant on the woman's identity, her ability to engage in previously meaningful activities, and the importance of improving appropriate social and emotional support.

Research has examined whether interventions that aim to improve the quality of the interaction between mother and baby can influence the adequacy of the caregiving, and thereby influence the child's attachment style. This body of research is guided by the paradigm that a secure attachment is associated with a more positive developmental trajectory (Eagle, 2006). Hoffman and colleagues (2006) examined changes in children's attachment classifications before and immediately after a group treatment intervention, the Circle of Security (COS). The COS contained both educational and therapeutic components, and aimed to provide parent education and attachment theory-based psychotherapy. Participants were 65 toddlers and preschool children and each child's primary caregiver. The Strange Situation was used as the pre-intervention assessment of the child's attachment style. The intervention was composed by weekly sessions during 20 weeks, and took place in groups of five to six caregivers. The child attachment was the outcome measure. As predicted, there was a significant decrease in disorganised attachment classification, with 70% of children from the disorganised group shifting towards the organised classification. Similarly, there was a significant decrease in insecurity attachment classification, with 44% of children from the insecure group shifting towards the secure classification. These findings suggest that the COS had a significant positive impact in the reduction of disorganised and insecure attachment styles in toddlers and preschoolers. The mechanisms through which the COS enabled change in the attachment-caregiving patterns was attributable to the caregiver's new ability to "recognise and reflect on key defensive strategies that had previously hindered their ability to respond to specific needs essential for security in their children" (Hoffman, Marvin, Cooper, & Powell, 2006, p. 1024).

A study by Toth, Rogosh, Manly, and Cicchetti (2006) aimed to enhance infants' attachment security through therapeutic interventions with the caregivers in the context of their interaction with their child. Mothers who had experienced major depressive disorder (MDD) since their child's birth were recruited (*n* = 130) and randomised to toddler-parent psychotherapy (depressed intervention, DI) or to a control group (depressed control, DC). A comparison control group of non-

depressed mothers with no current or past history of depression was also recruited (non-depressed control, NC; *n* = 68). Attachment styles were assessed at baseline, and it was found that maternal depression was associated with insecure attachment relationships in children, as shown by higher rates of insecure attachment in children in the DI and DC groups compared with children in the NC group. At post-intervention, children in the DI group evidenced increased attachment security than children in both the DC and the NC groups. Thus, children of depressed mothers who participated in the toddler-parent psychotherapy had more secure attachments than children of non-depressed mothers. These findings demonstrate the efficacy of parent-toddler psychotherapy in fostering secure attachment relationships in children of depressed mothers. It is important to note that the intervention did not alleviate maternal depression. Rather, the goal of the intervention was to optimise the quality of the relationship between caregiver and child and to promote a secure attachment in the child. This finding suggests that it is not maternal depression *per se* that accounts for the child's insecure attachment style, but the extent to which the depression affects the mother's availability and interaction with her child (Eagle, 2006). This finding provides evidence for the malleability of insecure attachments, which has valuable clinical implications. In particular, interventions aimed to enhance attachment security could be provided to caregivers whose children have insecure attachment styles. This would be particularly important when working with depressed mothers.

There appears to be some benefit in providing interventions that aim to improve mother-infant interactions, but also in providing interventions aimed at treating or preventing maternal depressive symptoms. Therefore, both therapies (those aimed specifically at improving the mother-infant interaction and those aimed at improving the mother's mental health) seem to have some efficacy.

2.2.2 Pharmacological interventions

The decision about whether to use pharmacological interventions to treat pregnant women or breastfeeding mothers for their mental disorder is complex and requires careful consideration (Hanley, 2009). There are concerns that, when medication is discontinued, symptoms may be exacerbated, which might negatively impact on the woman's general health. Prenatal depression can also lead to substance abuse and increase the risk of self-harm and suicide. Conversely, the use of medication can pose its own risks. For example, selective serotonin reuptake inhibitors (SSRIs), which are antidepressants typically used in the treatment of depression

and anxiety disorders, have been found to be associated with increased risk of miscarriage, birth defects, preterm birth, newborn behavioural syndrome, and possible longer-term neurobehavioural effects (Domar, Moragianni, Ryley, & Urato, 2013). This view is not supported by Robinson and Einarson (2013) who conducted a review of the literature about the long-term cognitive effects on children whose mothers took antidepressants during pregnancy. Results on more than 1000 children in different studies showed that antidepressant medication did not affect the children's global IQ, language development, behaviour or temperament during preschool and early school years. Maternal depression, however, resulted in less cognitive and language achievement. Therefore, the authors concluded that the risks of untreated depression outweigh the risks of SSRIs (Robinson & Einarson, 2013).

Given the negative consequences of maternal mental health on both mothers and babies, it seems important to develop specialised care that can address both the prenatal and postnatal periods, as well as both mothers and their babies.

2.3 Specialist Perinatal Mental Health Services

2.3.1 Availability of perinatal mental health services

The majority of mothers with a mental health problem is seen by their GP and their problem is managed in the community. In case the mother is very unwell or the management of her condition is beyond the primary health care team's abilities, a referral is made to the specialist perinatal mental health service (Hanley, 2009). The perinatal mental health service is composed of a multidisciplinary mental health team and provides a specialised service for women with moderate to severe mental health problems. This includes women either during their pregnancy or following the birth of their baby.

A survey of current specialist perinatal mental health services in England (Oluwatayo & Friedman, 2005) showed that, out of the 78 mental health trusts in England, 20 trusts (35%) had a perinatal multidisciplinary team. There was also evidence that 13 trusts (23%) provided the full range of services from in-patient to community teams and liaison clinic services. Problems identified by the services included the need for more community nurses, social workers, and psychologists, and inadequate primary care provision for the community care of perinatal women. These findings show that less than half of mental health trusts in England provide specialist perinatal services. Therefore, most perinatal women with mental

disorders have their care with generic mental health services, which might be inadequate (Department of Health, 2001).

2.3.2 Evaluation of perinatal services

There has been an increase in studies assessing satisfaction with mental health services. The assessment of clients' satisfaction has been identified as an important issue for three main reasons. Firstly, client satisfaction is a key objective in itself, because if a service is unacceptable to its users it will be underused, regardless of how effective it might be (Stallard, 1996). Secondly, clients' satisfaction has been found to be associated with client ratings of general improvement and satisfaction with treatment. Thirdly, client satisfaction research provides a way of assessing and monitoring service quality over time and this data can be used to change and develop services.

The most common method to assess clients' satisfaction is the satisfaction questionnaire.

2.3.3 The Perinatal Psychological Therapy Service at King's Hospital

The Perinatal Psychological Therapy Service at King's Hospital provides psychological assessments and interventions to women suffering from mental health problems who were either pregnant or had their baby in the last 12 months. The service was created due to the lack of perinatal psychology provision in the community in SLAM for some time. In particular, Lambeth, Southwark and Lewisham had no formal perinatal psychology input prior to this service. This was additionally difficult because primary care psychology services declined referrals being seen in the perinatal outpatient clinics on the basis that they should be treated in secondary care, but there was no secondary care psychology provision available to these women. The service was set up as a way of offering a small amount of psychological therapy to this client group. There was no funding attached to the service, so it was implemented by two Trainee Clinical Psychologists working under the supervision of the Consultant Clinical Psychologist on the Mother and Baby Unit. The rationale was to run and evaluate the service for a trial period, in order to provide data to inform future service planning. The service had a temporary nature, and ran from April to September 2012, having a duration of approximately 6 months.

In terms of care pathway, 11 referrals were made to the Perinatal Psychological Therapy service: 7 from the Perinatal Psychiatry Outpatient service at King's

College Hospital, 2 from the Maternal and Perinatal Partnerships in Mental Health (MAPPIM), 1 from IAPT services and 1 from a GP both in South London.

3.0 Method

3.1 Participants

Eleven referrals were received by the Perinatal Psychological Therapy Service at King's Hospital between April 2012 and September 2012. From those, 3 women were unable to attend appointments due to work commitments or long travel distances, and therefore they did not engage in the service. The remaining 8 female participants who attended the service were recruited for the study. Participants were asked to complete self-report questionnaires prior to starting receiving psychological treatment (pre-treatment) and again after they completed treatment (post-treatment). Data at post-treatment is missing for one participant. Data is reported for the remaining 7 participants.

In addition, data was gathered from referrers about 6 of the women. These were all of the referrals into the service.

3.2 Measures

All participants completed the following measures:

3.2.1 Clinical Outcomes in Routine Evaluation Outcome Measure (CORE-OM; Evans et al., 2000). The CORE-OM is a generic self-report measure of global distress, including subjective well-being, commonly experienced problems or symptoms, social/life functioning and risk to self and others (please see appendix 1). The CORE-OM comprises 34 items, which can be separated into four sub-scales: well-being (which includes 4 items), problems/symptoms (which includes 12 items), functioning (which includes 12 items), and risk (which includes 6 items). Each of the 34 items is scored on a 5-point scale ranging from 0 to 4 (0= not at all, 4= most of the time). The total score is calculated by adding all items, and the mean score by dividing the total score by the number of items. A higher mean score is associated with greater psychological distress. The CORE-OM has a clinical cut-off, above which it is considered that the psychological distress is of such frequency or intensity that is within the clinical range. The clinical cut-off of the CORE-OM for women is 1.29. The CORE-OM enables to examine clinically significant change, for example, change from above the clinical cut-off to below it.

The CORE-OM is sensitive to change and has high internal consistency and test-retest reliability (Evans et al., 2002). It has also been shown to be correlated (r = 0.77) with the Clinical Interview Schedule Revised among a non-clinical population, which provides evidence for its convergent validity (Connel et al., 2007).

On all CORE-OM subscales and total score, lower scores indicate lower levels of symptomatology, i.e., higher levels of functioning.

3.2.2 Mother-to-Infant Bonding Scale (Taylor, Atkins, Kumar, Adams, & Glover, 2005). This is an 8-item self-report questionnaire that has been designed to assess the feelings of a mother towards her new baby (please see appendix 2). A higher score on the Mother to Infant Bonding scale indicates worse bonding. The Mother-to-Infant Bonding Scale has been shown to have good test-retest reliability (r = 0.54), and to positively correlate with the Edinburgh Postnatal Depression Scale, indicating that mother's depression is associated with worse bonding towards her baby (Taylor et al., 2005).

Disorder-specific questionnaire. The choice of the disorder-specific questionnaire was made by the therapist who initially assessed clients and based on the main problem clients reported experiencing at the time of the assessment. These included one or more of the following measures:

3.2.3 Centre for Epidemiological Studies- Depression Scale (CES-D; Radloff, 1977). The CES-D is a self-report measure of current depressive symptoms including depressed mood, feelings of worthlessness and hopelessness, loss of appetite, poor concentration, and sleep disturbance. The scale is also used to measure change in depressive symptoms severity over time, and as an initial screening tool for depressive disorder (please see appendix 3). The CES-D has 20 items ranging from 0-3 (0= rarely or none of the time, 3= most or all of the time). A higher score on the CES-D indicates greater depressive symptoms, and a cut-off of 16 or above is indicative of mild depressive symptoms. The CES-D has been shown to have adequate internal consistency, test-retest reliability, and discriminate validity (Radloff, 1977; Weissman, Sholomskas, Pottenger, Prusoff, & Locke, 1977).

3.2.4 Penn State Worry Questionnaire (PSWQ; Meyer, Miller, Metzger, & Borkovec, 1990). The PSWQ is a self-report measure of an individual's tendency to worry characteristic of General Anxiety Disorder (GAD). It assesses a general cognitive style of excessive, uncontrollable worry, as opposed to the specific content of the worry thoughts (please see appendix 4). The PSWQ comprises 16 items ranging on a scale from 1 to 5 (1= not at all typical or characteristic, 5= very

typical or characteristic). A higher score on the PSWQ indicates greater worry, with mean scores for groups with GAD ranging from 60 to 68. The PSWQ has good internal consistency and test-retest reliability (Meyer et al., 1990). It has also been shown to discriminate between GAD and other anxiety disorders, and between different severity levels among GAD (Brown, Antony, & Barlow, 1992).

3.2.5 Panic Rating Scale (PRS; Clark et al., 1994). The PRS is a self-report measure designed to assess the frequency of panic attacks, panic related distress/disability and avoidance associated with panic disorder (please see appendix 5). The PRS has three items: the first item relates to the frequency of panic attacks over the last two weeks and is rated on a five-point scale ranging from 0-4 (0= No panic attacks, 4= One or more panic attacks per day); the second item relates to the degree of perceived disturbance and/or disability relating to the panic attacks and is rated on a nine-point scale ranging from 0-8 (0= Not at all disturbing and/or disabling, 8= Very disturbing or disabling); the third item relates to the level of avoidance of particular situations due to fear of panic attacks or symptoms, and is rated on a nine-point scale ranging from 0-8 (0= Never avoid, 8= Always avoid). Items one and two of the PRS have been found to be sensitive to change with treatment for panic disorder (Clark et al., 1994; 1999).

3.2.6 Impact of Events Scale Revised (IES-R; Weiss & Marmar, 1997). The IES-R is a self-report assessment of psychological response to a specific traumatic or stressful life event, and it can be used as a measure of symptoms of post-traumatic stress disorder (PTSD) (please see appendix 6). The IES-R has 22 items divided into three sub-scales: intrusion, avoidance and hyper-arousal. The Intrusion sub-scale assesses intrusive thoughts, images or feelings and dissociative re-experiencing. The Avoidance sub-scale assesses attempts to avoid experiences associated with the traumatic event, including feelings of numbness. The Hyperarousal sub-scale assesses symptoms of hyper-arousal in PTSD. The IES-R is scored on a five-point scale ranging from 0-4 (0= Not at all distressed or bothered, 4= Extremely distressed or bothered), whereby higher scores indicate greater PTSD symptoms. A cut-off score of 33 or above is indicative of PTSD symptoms. The scale has been shown to have high internal consistency (alpha= 0.96) (Creamer, Bell & Failla, 2003) and test-retest reliability across a 6 month interval ranged from .89 to .94 (Weiss & Marmar, 1997). Results from a recent

study provide support for the IES-R three-factor structure and its internal consistency, concurrent and discriminative validity (Beck et al., 2008).

3.2.7 Client Satisfaction Questionnaire (CSQ). This questionnaire assesses clients' satisfaction with psychology services, and it has been used across SLaM services. It focuses on satisfaction with the psychology service in terms of the psychological therapy provided, care plan, therapist and overall satisfaction (please see appendix 7). It includes both questions rated on a Likert scale and open ended questions where participants have the opportunity to provide their comments about the service, the psychological therapy provided and the therapist.

3.2.8 Referrer Satisfaction Questionnaire (RSQ). This questionnaire was developed for the purpose of the current study and assesses the referrer's satisfaction with the psychology service provided to his/her client(s). It focuses on satisfaction with the assessment and treatment provided, including the assessment and discharge reports (please see appendix 8). The RSQ includes both questions rated on a Likert scale and open ended questions where referrers have the opportunity to provide their comments about the service provided to the clients they referred, assessment and discharge reports received, and treatment.

3.3 Procedure

The CORE-OM, Mother-to-Infant-Bonding-Scale, and one or more of the disorder-specific questionnaires were administered to eight female participants as part of a psychological assessment and prior to starting therapy. Participants were women experiencing mental health problems who were either pregnant or had their baby in the last 12 months, and had been referred to the Perinatal Psychology Service at KCH. At the end of their psychological treatment, the same questionnaires were administered again. In addition to measures assessing psychological symptoms, the Client Satisfaction Questionnaire and the Referrer Satisfaction Questionnaire were administered at the end of treatment to clients and referrers, respectively, to assess their satisfaction with the treatment provided by the Perinatal Psychology Service. The Client Satisfaction Questionnaire was given to clients along with the post-treatment symptom measures, and the Referrer Satisfaction Questionnaire was posted to the referrer, along with the client's discharge report.

4.0 Results

4.1 Characteristics of the sample

Eight clients consented to take part in the current study, but data at post-treatment was missing for one. Therefore, data analyses were conducted for the remaining seven participants. Participants' age ranged from 26 to 36 years and the mean age was 30.57 years (SD= 3.05). Four women (57.1%) were referred to the service due to prenatal difficulties, and three women (42.9%) due to postnatal difficulties. In terms of their ethnicity, three women (42.9%) were White British, one woman (14.3%) was Caribbean, one woman (14.3%) was Bangladeshi, one woman (14.3%) was Chinese, and one woman (14.3%) was Kusdistan. According to referral information, the main presenting problem women were experiencing was depression/depressive mood (85.7%), and anxiety (14.3%), including comorbid depression and anxiety (28.6%), and comorbid depression and atypical eating disorder (14.3%).

4.2 Psychopathology

Scores on the general and disorder-specific measures are shown in Table 1. Due to the small sample size and lack of power, it was not possible to conduct statistical tests to examine whether any changes from pre to post-treatment were statistically significant.

Table 1- Scores on the general measures and disorder-specific measures at pre-treatment and post-treatment

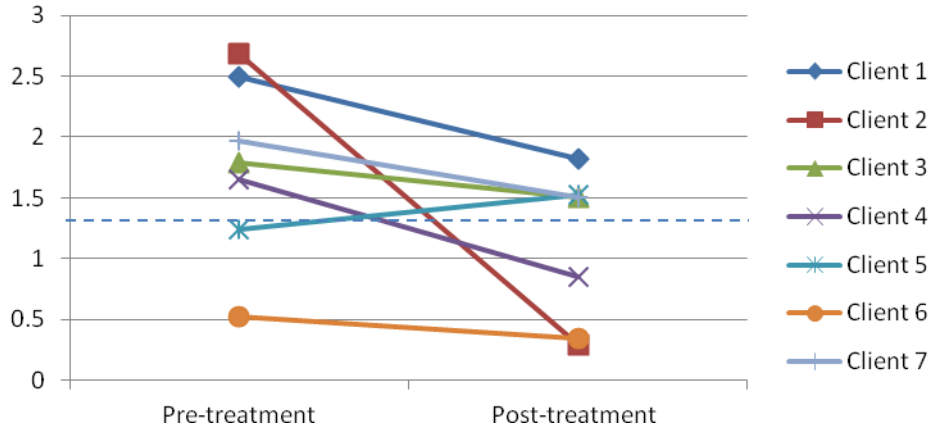
	N	Range	Pre-treatment mean (SD)	Post-treatment mean (SD)
CORE-OM	7	0-4	1.76 (0.73)	1.12 (0.62)
Well-being			2.00 (1.05)	1.46 (0.57)
Problems			2.20 (0.92)	1.37 (0.85)
Functioning			1.82 (0.73)	1.26 (0.70)
Risk			0.62 (0.96)	0.12 (0.31)
Mother to Infant Bonding scale	7	0-24	6.86 (4.85)	3.00 (3.06)
CES-D	4	0-60	30.75 (4.99)	20.75 (4.35)
PSWQ	2	16-80	61.50 (14.85)	57.00 (28.28)
PRS	1	0-20	5.00	6.00
IES	1	0-88	36.00	6.00
Avoidance			19.00	2.00
Intrusions			14.00	3.00
Hyper-arousal			3.00	1.00

Note: CORE-OM: Clinical Outcomes in Routine Evaluation- Outcome Measure; CES-D: Centre for Epidemiological Studies- Depression Scale; PSWQ: Penn State Worry Questionnaire; PRS: Panic Rating Scale; IES: Impact of Events Scale (IES)

4.2.1 Psychological distress

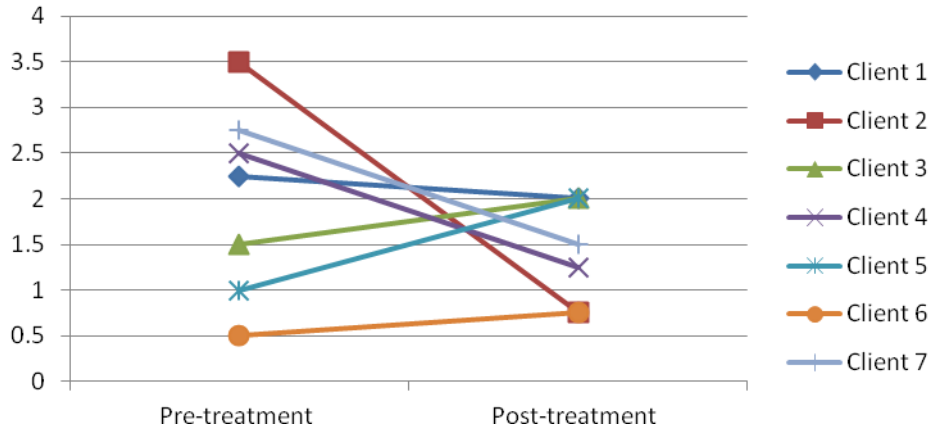
Individual scores on psychological distress, as measured by the CORE-OM, are shown in Figure 1. All clients (except client 5) showed a reduction on their individual CORE-OM scores from pre to post-treatment, indicating overall decreased psychological distress. Client 2 showed a very considerable reduction in psychological distress. Overall, there was a considerable improvement in clients' reported psychological well-being. From pre to post-treatment, their mean score changed from above the clinical cut-off of 1.29 to below it.

Figure 1- CORE-OM mean scores: Pre and post treatment



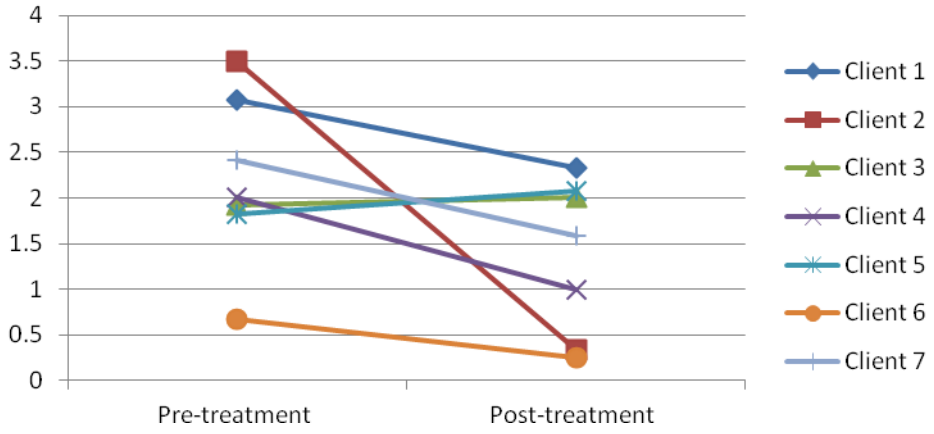
Scores on the CORE-OM sub-scales of Well-being, Problems, Functioning, and Risk are shown in Figures 2, 3, 4, and 5, respectively.

Figure 2- CORE-OM Well-being mean scores: Pre and post treatment



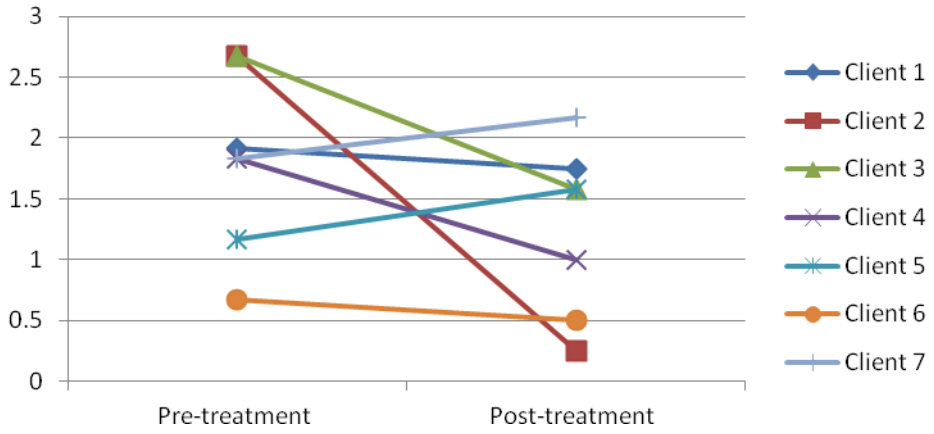
From pre to post-treatment some clients' well-being increased (clients 1, 2, 4, 7), and other clients' well being slightly decreased (clients 3, 5, 6). Client 2 showed a considerable improvement in well-being. Overall, there was an improvement in clients' reported well-being from pre to post-treatment (as shown in Table 1).

Figure 3- CORE-OM Problems mean scores: Pre and post treatment



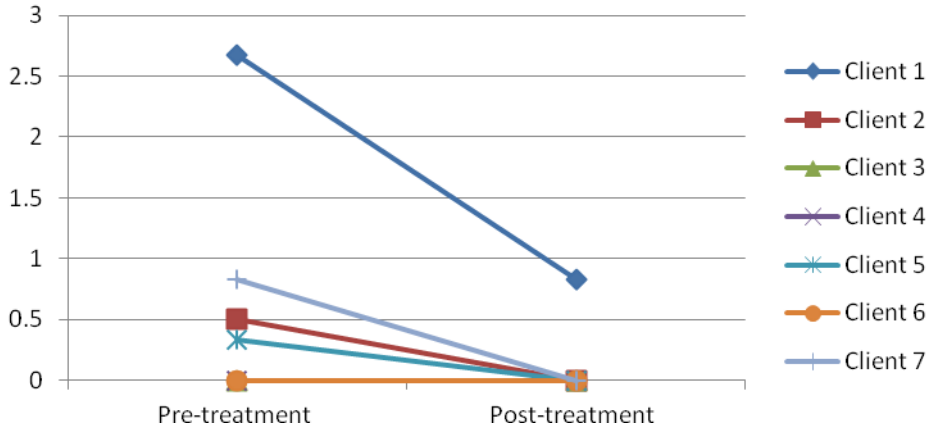
From pre to post-treatment, all clients reported less problems, with the exception of clients 3 and 4 who reported slightly more problems. Client 2 reported considerably less problems from pre to post treatment. Overall, there was a decrease in clients' reported problems from pre to post-treatment (as shown in Table 1).

Figure 4- CORE-OM Functioning mean scores: Pre and post treatment



Most clients' functioning increased with the exception of clients 5 and 7, whose functioning slightly decreased. Overall though, there was an improvement in clients' reported functioning from pre to post-treatment (as shown in Table 1).

Figure 5- CORE-OM Risk mean scores: Pre and post treatment

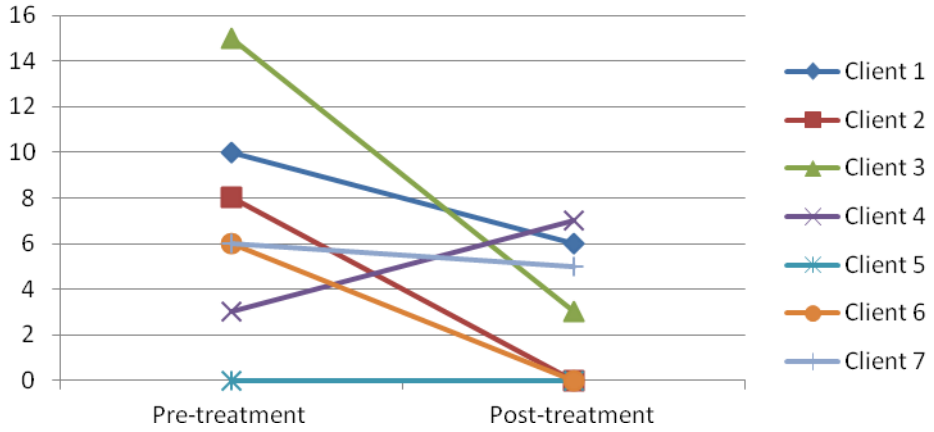


From pre to post-treatment, all clients showed a reduction in risk to themselves or others. For clients 3, 4, and 6 risk was already null at pre-treatment and remained null at post-treatment.

4.2.2 Bonding between mother and baby

Scores on the Mother to Infant Bonding Scale are shown in Figure 6. From pre to post-treatment, all clients but one (client 4) reported a higher bonding towards their babies.

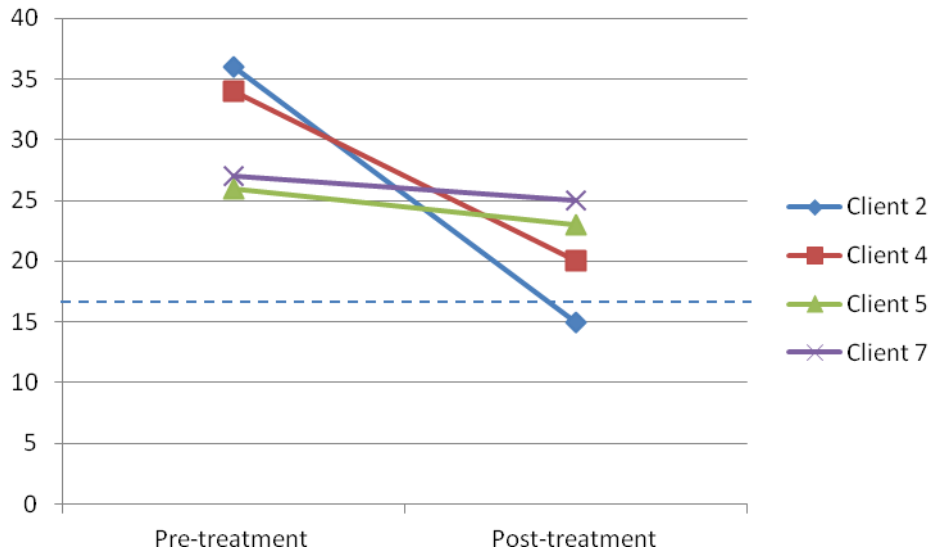
Figure 6- Mother to Infant Bonding Scale scores: Pre and post treatment



4.2.3 Depressive symptoms

Symptoms of depression, as assessed by the CES-D, are shown in Figure 7. Depressive symptoms dropped from pre to post-treatment for all clients, indicating fewer or less severe depressive symptoms at the end of treatment. Depression scores of client 2 changed from above the clinical cut-off of 16 to below it. For clients 4, 5, and 7, depression scores decreased, but remained slightly above the clinical cut-off at post-treatment.

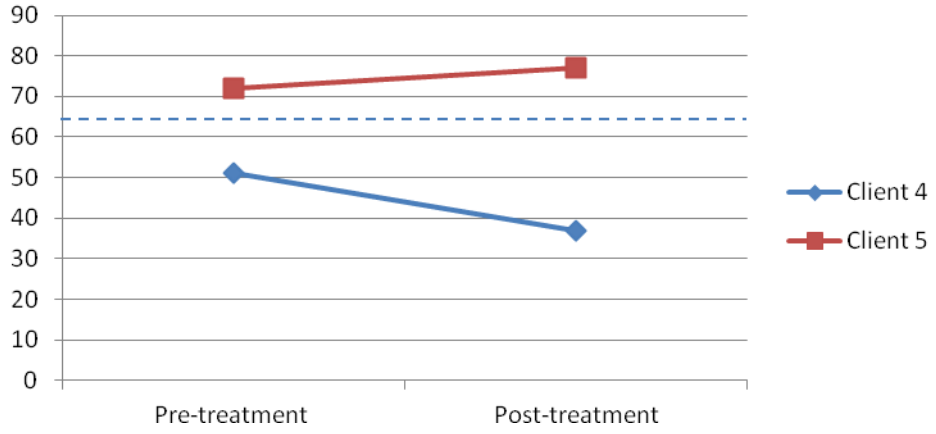
Figure 7: Depression scores: pre and post treatment



4.2.4 General anxiety symptoms

Symptoms of general anxiety, as measured by the PSWQ, are shown in Figure 8. From pre to post treatment, client's 4 anxiety scores decreased and remained below the GAD range of 60 to 68, while client's 5 anxiety scores slightly increased and remained above the GAD range. Overall, there was a reduction in reported anxiety scores (as shown in Table 1), indicating fewer or less severe symptoms of general anxiety at the end of treatment.

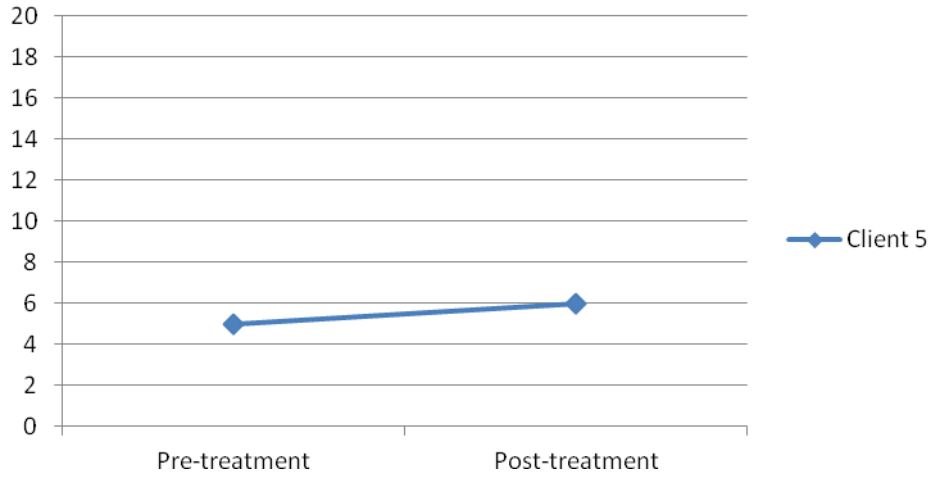
Figure 8: General anxiety scores: Pre and post treatment



4.2.5 Panic disorder symptoms

Panic disorder symptoms, as measured by the PRS, did not change from pre to post-treatment. There was, however, only one participant completing this scale.

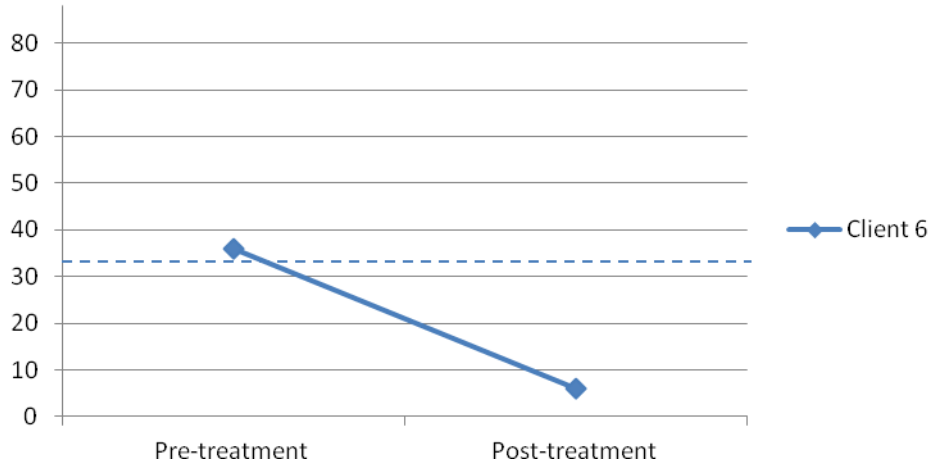
Figure 9: Panic scores: Pre and post treatment



4.2.6 Post-traumatic stress disorder symptoms

Symptoms of PTSD, as measured by the IES-R, reduced considerably from pre to post-treatment and dropped below the clinical cut-off of 33. There was, however, only one participant completing this scale.

Figure 10: PTSD scores: pre and post treatment



4.3 Clients' satisfaction

Seven participants completed the Client Satisfaction Questionnaire (CSQ). They also had the opportunity to provide comments and feedback about the service they received at the Perinatal Psychology Service and these comments will also be reported.

4.3.1 Therapists' personal characteristics

Six participants (85.7%) reported that their therapists "definitely" listened carefully to them, 1 participant (14.3%) reported that her therapist listened carefully to her "to some extent", and no one reported their therapist not listening carefully to them. Similarly, 6 participants (85.7%) reported that their therapists "definitely" treated them with respect and dignity, 1 participant (14.3%) reported that her therapist treated her with respect and dignity "to some extent", and no participant reported their therapist not treating them with respect and dignity. In terms of comments about their therapist, one participant said "my therapist was lovely and really cared about both me and my baby. It was a great pleasure coming to see her and I will miss her", and another mentioned "The psychologist was very good at listening and I didn't feel that I had to hold back".

4.3.2 Care plan

Two participants (28.6%) reported having been given a written or printed copy of their care plan, 4 participants (57.1%) reported not having been given a care plan,

and 1 participant (14.3%) was unsure. When asked whether they were involved in deciding what was in their care plan, 2 participants (33.3%) answered “Yes, definitely”, 1 participant (16.7%) answered “Yes, to some extent”, and 3 participants (50%) reported not being involved. One participant added though “I don’t need a care plan”.

4.3.3 Psychological therapy

All participants reported having received psychological therapy. The length of therapy ranged from 0 to 3 months for 5 participants (71.4%), and from 3 to 6 months for 2 participants (28.6%). No one reported having received psychological therapy for less than a month, or for more than 6 months, which is in line with the nature of the service that was set up for 6 months (April to September). Before starting therapy, 4 participants (57.1%) reported being “Unsure” about the usefulness of therapy and 3 participants (42.9%) reported expecting therapy to be “Very useful”. However, once they received therapy, 5 participants (71.4%) reported that it was “definitely helpful”, 2 participants (28.6%) thought it was “helpful, to some extent”, and no participants reported not finding the therapy received helpful. This indicates that the therapy received exceeded clients’ initial expectations about it. Also, when asked how badly was the problem affecting their life in general before meeting the therapist, 1 participant (14.3%) reported “Extremely”, 3 participants (42.9%) reported “A lot”, 2 participants (28.6%) reported “Somewhat”, and 1 participant (14.3%) reported “A little”. However, when asked how badly is the problem affecting life in general since coming to see the therapist, only 1 participant (14.3%) reported “Somewhat”, 4 participants (57.1%) reported “A little”, and 2 participants (28.6%) reported “Not at all”. This indicates that attending therapy helped clients to manage their problem and to minimise its impact in their lives.

When clients were asked to provide comments about their psychological therapy, one client said “I have had therapy before but this time I felt I discovered a lot more about myself and my relationships”, and another said “ I feel that I can be more open about different things and can communicate more effectively”.

4.3.4 Overall satisfaction

On the item regarding overall satisfaction with the Perinatal Psychology Service received, 5 participants (71.4%) rated the service as “Excellent”, 1 participant (14.3%) rated it as “Good”, 1 participant (14.3%) rated it as “Fair”, and no one rated

the service as “Poor” or “Very poor”. In terms of the time and location of the appointment offered, 4 participants (57.1%) reported being “Very satisfied” and 3 participants (42.9%) reported being “Satisfied”, with no one reporting being “Dissatisfied” or “Very dissatisfied”. One participant added this was an “excellent service”.

When asked whether they would recommend the psychology service to a friend in a similar situation, 5 participants (71.4%) answered “Yes”, 1 participant (14.3%) answered “Don’t know/not sure”, and 1 participant (14.3%) answered “No”. One participant added that “I would highly recommend the service”.

Lastly, when participants were asked for advice to help improve the service, one participant said “Just to have longer length of sessions- 10 sessions was too short. It would be easier to continue with the same person as we were making such good progress”; and another participant mentioned “More GP's and midwives more aware, and encourage similar across the country”.

4.4 Referrers’ satisfaction

Two referrers completed the Referrer’s Satisfaction Questionnaire (RSQ) regarding six clients they had referred to the Perinatal Psychology Service at King’s College Hospital. One referrer completed the questionnaire regarding one client she had referred, the other referrer completed the questionnaire regarding five clients she had referred. Therefore, the RSQ was not completed for one client.

Both referrers reported finding it easy to access information about the Perinatal Psychology Service and having had an interaction with the service prior to making the referral. On a 5-point Likert scale ranging from “Very dissatisfied” to “Very satisfied”, both referrers reported being “Very satisfied” with the information provided during the interaction with the service and with the time taken to receive written acknowledgement of the six referrals they had made. Also, both referrers reported that the clients they referred were assessed by the Perinatal Psychology Service and one referrer added that it was “great not to have a long wait for assessment; seen very quickly”. On a 5-point Likert scale ranging from “Very dissatisfied” to “Very satisfied”, both referrers reported being “Very satisfied” with the assessment reports and one referrer added that she found them “very thorough”.

In terms of the treatment provided by the Perinatal Psychology Service, both referrers reported that the clients they had referred were treated by the service, and rated their level of satisfaction with the outcome of treatment as “Very

satisfied". One referrer added that "the patient found the therapy extremely helpful and clearly benefited from this".

Referrers were also asked to rate how helpful they found the discharge psychology reports on a 5-point Likert scale ranging from "I did not find it helpful" to "Very helpful". Both referrers reported they found the discharge psychology reports of the six clients they had referred "Very helpful" and one referrer added that the report was "very thorough".

In terms of their overall experience of referring to the Perinatal Psychology Service, both referrers reported being "Very satisfied" with their overall experience of referring six clients to the service. Referrers were also asked whether, following their experience, there was an area they felt could be improved. Both referrers answered "Yes", and one referrer added that "There should be more psychologists so we can have more patients assessed and treated", and the other referrer added that "Only that there is greater capacity to see more women!".

Lastly, referrers were asked to make final comments regarding their experience provided by the Perinatal Psychology Service, and one referrer said that "It is a very important service", and the other referrer mentioned "Excellent service and make a real difference when women can be assessed and seen for treatment during pregnancy in time to make significant changes before their baby is born. Also to have a specialist perinatal psychology service with an understanding of the relevant issues."

5.0 Discussion

5.1 Summary of results

The current study aimed to evaluate the new Perinatal Psychology Service at King's College Hospital. This service provided psychological interventions to women who were either pregnant or had their baby in the last 12 months, and who were experiencing mental health problems. The service had a temporary nature (running from April to September 2012) and was provided by two Trainee Clinical Psychologists. In total, eight women attended the service and received psychological therapy. The current study reported data on seven (out of eight) women, as there was missing data at post-treatment for one woman. Participants completed measures of psychological well-being both prior to starting therapy and again at the end of treatment, and measures of client satisfaction at the end of treatment only.

Participants' reported psychopathology at the end of treatment was lower than at the start of treatment. At post-treatment, they reported less psychological distress, less problems, lower risk, greater well-being and higher functioning than at pre-treatment. At post-treatment, they also reported higher bonding with their baby, and fewer or less severe symptoms of depression, general anxiety and PTSD than at pre-treatment.

In terms of satisfaction with the service, all participants reported that they felt listened to and treated with respect and dignity, which contributed to the enjoyment of sessions. Although more than half of participants reported not being given a care plan, the ones who were given a care plan reported being involved in deciding what was in their care plan. All participants received psychological therapy and, although more than half of participants were unsure about the usefulness of therapy before they started, they all found therapy helpful once they received it. Therefore, psychological therapy exceeded participants' initial expectations about it. This was perhaps associated with the fact that there was an improvement in the problems regarding which participants attended therapy. They provided positive feedback about the outcomes of therapy, such as an increased ability to communicate more effectively, and a greater awareness of oneself and one's relationships.

The overall clients' satisfaction with the service was very high, and most rated the service as either "excellent" or "good", and mentioned they would recommend it to a friend in a similar situation.

In addition to examining clients' satisfaction with the service received, the current study also examined referrers' satisfaction regarding their experience of referring to the Psychology Service at King's College Hospital. Referrers reported being "very satisfied" with the information provided during an initial interaction with the service, and with the time taken to receive written acknowledgment of the referrals they made. They also reported a great level of satisfaction with the assessment and treatment their clients received, and with the assessment and discharge reports regarding the clients they referred.

Overall, referrers reported high satisfaction with the service, and the only area of improvement they mentioned was to have more clinical psychologists to enable to provide more assessments and treatment to clients. They praised the service and emphasised the importance of receiving specialist psychology input during pregnancy as a way to foster significant changes in the mother, the baby and their interaction.

5.2 Strengths and limitations of the research

Perinatal services are uniquely placed to provide interventions that benefit both mother and baby by an awareness of the forming attachment, and this was reflected in this study by using the Mother to Infant Bonding Scale (Taylor et al., 2005), and that is one of the strengths of the current study.

One of the limitations of the current study is its small sample size, which did not enable to test the statistical significance of the changes patients reported (from pre to post-treatment). This was limited by the nature of the service, which was provided by two Trainee Clinical Psychologists each doing one day a week of clinical sessions. Nevertheless, the data indicate that the service was positively received by both service users and referrers and appeared to lead to clinical benefits for mothers. Furthermore, although the sample size was small, the response rate was high, as all women completed the CORE-OM, and 7 women out of 8 (87.5%) completed the Mother to Infant Bonding Scale at both pre and post-treatment.

Another limitation of the research is the use of quantitative research methods only. The utilisation of supplementary qualitative methods (e.g., interviews) can aid the exploration of the results of satisfaction research and facilitate the identification of problem areas and agreement of possible solutions (Powell, Holloway, Lee, & Sitzia, 2004). Although it was not possible to use interviews in the current study, an

effort was made to include open ended questions in the questionnaires, and participants were encouraged to express their views.

The use of self-report scales also has limitations, as the scales are completed by the women accessing treatment and there remains the problem that they might exaggerate or minimise their symptoms, thereby biasing the scores. Nevertheless, an effort was made to explain the purpose of the research to the mothers, to reiterate that there were no right or wrong answers, and to emphasise that the ultimate aim of the study was to improve the service provided.

5.3 Clinical implications of the research

The current study shows that the Perinatal Psychological Therapy Service at King's Hospital was very well received by both service users (mothers/mother-to-be who received psychological therapy) and referrers.

Considering the potential negative impact mental health problems can have on the mother, the baby, and their interaction (Bennett et al., 2004; Evans et al., 2001; Murray et al., 1996; O'Connor et al., 2002), it is particularly relevant to provide specialist perinatal services that have an understanding of relevant issues related to motherhood and pregnancy. Currently, more than half of perinatal women are treated in generic mental health services (Departmemnt of Health, 2001); however, this might be inadequate, in particular when the woman suffers from severe mental health problems that might affect her ability to take care of her baby and of herself. The current study shows that a specialist perinatal psychology service can contribute to improved mental health outcomes (such as increased functioning and well being and reduced levels of psychopathology) among women who attend it. Furthermore, the study suggests that psychological therapy can contribute to the development of a stronger bond between mother and baby. The attachment literature suggests that early difficulties in children's ability to develop a secure attachment style contribute to the emergence of subsequent maladaptation (Toth et al., 2009). Therefore, interventions that facilitate a stronger bond between mother and baby can potentially help to prevent those difficulties.

Based on the results of the current research, one aspect that could be improved in terms of service development is the provision of longer-term therapy, as some clients reported a preference for longer length of sessions as to provide continuity of treatment. The nature of the Perinatal Psychological Therapy Service at King's did not enable this, as the service ran for 6 months only. However, future perinatal services may consider this possibility based on the women's individual needs.

Given the positive feedback the service received and the positive mental health outcomes it achieved, it is suggested that other service users might benefit from it and, therefore, consideration should be given to the service becoming of a more permanent nature.

5.4 Dissemination

The findings of the current research were disseminated by an oral presentation to staff members across SLAM perinatal services in the context of a Perinatal Education and Training day (held on 26th March 2014). The outcome was that it was decided to analyse additional data from other psychology community services and to present data to service managers and commissioners. There was also discussion of outcome measures used by other professions, who are likely to start using the Bonding Scale and possibly also the CORE-10.

References

Abramowitz, J. S., Schwartz, S. A., Moore, K. M., & Luenzmann, K. R. (2003). Pbsessive-compulsive symptoms in pregnancy and the puerperium: A review of the literature. *Journal of Anxiety Disorders, 17*, 461-478.

Almeida, C. P., Sa, E., Cunha, F., & Pires, R. (2012). Common mental disorders during pregnancy and baby's development in the first year of life. *Journal of Reproductive and Infant Psychology, 30*, 341-351.

Apter, G., Devouche, E., & Gratier, M. (2011). Perinatal mental health. *The Journal of Nervous and Mental Disease, 199*, 575-577.

Apter-Danon, G., Candilis, D. A. (2005). Challenge for perinatal psychiatry: Therapeutic management of maternal borderline personality disorder and their very young infants. *Clinical Neuropsychiatry, 2*, 302-314.

Beck, C. T. (1998). The effects of postpartum depression on child development: A meta-analysis. *Archives of Psychiatric Nursing, 12*, 12-20.

Beck, J. G., Grant, M., Read, J. P., Clapp, J. D., Coffey, S. F., Miller, L. M., & et al. (2008). The Impact of Event Scale- Revised: Psychometric properties in a sample of motor vehicle accident survivors. *Journal of Anxiety Disorders, 22*, 187-198.

Bennett, H. A., Einarson, A., Taddio, A., Koren, G., Einarson, T. R. (2004). Prevalence of depression during pregnancy: Systematic review. *Obstetrics & Gynecology, 103*, 698-709.

Brown, T. A., Antony, M. M., & Barlow, H. B. (1992). Psychometric properties of the Penn State Worry Questionnaire in a clinical anxiety sample. *Behaviour Research and Therapy, 1*, 33-37.

Burdette, H., Whitaker, R., Kahn, R., & Harvey-Berino, J. (2003). Association of maternal obesity and depressive symptoms with television-viewing time in low-income pre-school children. *Archives of Pediatrics and Adolescent Medicine, 157*, 894-899.

Clark, D. M., Salkovskis, P. M., Hackman, A., Middleton, H., Anastasiades, P., & Gelder, M. G. (1994). A comparison of cognitive therapy, applied relaxation and imipramine in the treatment of panic disorder. *British Journal of Psychiatry, 164*, 759- 769.

Clark, D. M., Salkovskis, P. M., Hackman, A., Wells, A., Ludgate, J., & Gelder, M. (1999). Brief cognitive therapy for panic disorder: A randomised controlled trial. *Journal of Consulting and Clinical Psychology, 67*, 583-589.

Connel, J. , Barkham, M., Stiles, W. B., Twigg, E., Singleton, N., Evans, O., et al. (2007). The distribution of CORE-OM scores in the general population, clinical cut-offs and comparison with the CIS-R. *British Journal of Psychiatry, 190*, 69- 74.

Cooper, P. J., Campbell, E. A., Day, A., Kennerley, H., & Bond, A. (1988). Non-psychotic psychiatric disorders after childbirth: A prospective study of prevalence, incidence, course and nature. *British Journal of Psychiatry, 152*, 799-806.

Creamer, M., Bell, R., & Failla, S. (2003). Psychometric properties of the Impact of Event Scale- Revised. *Behaviour Research and Therapy, 41*, 1489- 1496.

Department of Health (2001). *Why Mothers Die: Reports on Confidential Enquiry into Maternal Deaths, 1997-1999.* London: Department of Health.

Domar, A. D., Moragianni, V. A., Ryley, D. A., & Urato, A. C. (2013). The risks of selective serotonin reuptake inhibitor use in infertile women: A review of the impact on fertility, pregnancy, neonatal health, and beyond. *Human Reproduction, 28*, 160-171.

Eagle, M. N. (2006). Attachment, psychotherapy, and assessment: A commentary. *Journal of Consulting and Clinical Psychology, 74*, 1086-1097.

Evans, C., Connell, J., Barkham, M., Margison, F., Mellor-Clark, J., McGrath, G. et al. (2002). Towards a standardised brief outcome measure. Psychometric properties and utility of the CORE-OM. *British Journal of Psychiatry, 180*, 54- 60.

Evans, C., Mellor-Clark, J., Margison, F., Barkham, M., Audin, K., Connell, J., et al. (2000). CORE: Clinical Outcomes in Routine Evaluation. *Journal of Mental Health, 9*, 247- 255.

Evans, J., Heron, J., Francomb, H., Oke, S., Golding, J. & The Avon Longitudinal Study of Parents and Children Study Team (2001). Cohort study of depressed mood during pregnancy and after childbirth. *British Medical Journal, 323*, 257-260.

Faisal-Cury, A., Menezes, P., Araya, R., & Zugaib, M. (2009). Common mental disorders during pregnancy: Prevalence and associated factors among low-income women in Sao Paulo, Brazil: Depression and anxiety during pregnancy. *Archives of Women's Mental Health, 12*, 335- 343.

Figueira, P. G., Diniz, L. M., Filho, H. C. (2011). Demographic and psychosocial characteristics associated with postpartum depression in a sample from Belo Horizonte. *Revista de Psiquiatria do Rio Grande do Sul, 33*, 71-75.

Fisher, J., Mello, M. C., Patel, V., Rahman, A., Tran, T., Holton, S., et al. (2012). Prevalence and determinants of common perinatal mental disorders in women in low- and lower-middle-income countries: A systematic review. *Bulletin of the World Health Organization, 90*, 139-149.

Green, J. M. (1990). "Who is unhappy after childbirth?": Antenatal and intrapartum correlates from a prospective study. *Journal of Reproductive and Infant Psychology, 8*, 175-183.

Halligan, S. L., Murray, L., Martins, C., Cooper, P. J. (2006). Maternal depression and psychiatric outcomes in adolescent offspring: A 13-year longitudinal study. *Journal of Affective Disorders, 97*, 145-154.

Hanley, J (2009). *Perinatal Mental Health: A Guide for Health Professionals and Users.* West Sussex: Wiley-Blackwell.

Heron, J. O'Connor, T. G., Evans, J., Golding, J., Glover, V. & the ALSPAC Study Team (2004). The course of anxiety and depression through pregnancy and the postpartum in a community sample. *Journal of Affective Disorders, 80*, 65-73.

Hoffman, K. T., Marvin, R. S., Cooper, G., & Powell, B. (2006). Changing toddlers' and preschoolers' attachment classifications: The circle of security intervention. *Journal of Consulting and Clinical Psychology, 74*, 1017-1026.

Leis, J. A. (2012). Perinatal mental health problems: maternal and child outcomes and implications for prevention. *Dissertation Abstracts International: Section B: The Sciences and Engineering, 72*, 5877.

Martini, J., Knappe, S., Beesdo-Baum, K., Lieb, R., & Wittchen, H. (2010). Anxiety disorders before birth and self-perceived distress during pregnancy: Associations with maternal depression and obstetric, neonatal and early childhood outcomes. *Early Human Development, 86*, 305- 310.

Martins, C., & Gaffan, E.A. (2000). Effects of early maternal depression on patterns of infant-mother attachment: A meta-analytic investigation. *Journal of Child Psychology and Psychiatry, 41*, 737- 746.

Meyer, T. J., Miller, M. L., Metzger, R. L., & Borkovec, T. D. (1990). Development and validation of the Penn State Worry Questionnaire. *Behaviour Research and Therapy, 28*, 487- 495.

Murray, L. (1992). The impact of postnatal depression on infant development. *Journal of Child Psychology and Psychiatry, 33*, 543- 561.

Murray, L., Fiori-Cowley, A., & Hooper, R. (1996). The impact of postnatal depression and associated adversity on early mother-infant interactions and later infant outcome. *Child Development, 67*, 2512- 2526.

National Institute for Health and Clinical Excellence (NICE) (2007). Antenatal and postnatal mental health: The NICE guideline on clinical management and service guidance. Http://www.nice.org.uk

O'Connor, T., Heron, J., Glover, V., & the ALSPAC Study Team (2002). Antenatal anxiety predicts child behavioural/emotional problems independently of postnatal depression. *Journal of the American Academy of Child and Adolescent Psychiatry, 41*, 1470-1477.

O'hara, M. W., & Swain, A. M. (1996). Rates and risk of postpartum depression- a meta-analysis. *International Review of Psychiatry, 8*, 37-54.

Olde, E., van der Hart, O., Kleber, R., van Son, R. (2006). Posttraumatic stress following child birth: A review. *Clinical Psychology Review, 26*, 1-16.

Oluwatayo, O., & Friedman, T. (2005). A survey of specialist perinatal mental health services in England. *Psychiatric Bulletin, 29*, 177-179.

O'Mahen, H., Fedock, G., Henshaw, E., Himle, J., A., Forman, J., & Flynn, H. A., (2012). Modifying CBT for perinatal depression: What do women want?: A qualitative study. *Cognitive and Behavioral Practice, 19*, 359-371.

Orr, S. T., James, S. A., Prince, C. B. (2002). Maternal prenatal depressive symptoms and spontaneous preterm births among African-American women in Baltimore, Maryland. *American Journal of Epidemiology, 156*, 797-802.

Powell, R. A., Holloway, F., Lee, J., & Sitzia, J. (2004). Satisfaction research and the uncrowned king: Challenges and future directions. *Journal of Mental Health, 13*, 11-20.

Radloff, L. S. (1977). The CES-D Scale: A self-report scale for research in the general population. *Applied Psychological Measurement, 1*, 385- 401.

Robinson, G. E., & Einarson, A. (2013). Risks of untreated depression outweigh any risks of SSRIs. *Human Reproduction, 28*, 1145- 1146.

Sinclair, D., & Murray, L. (1998). Effects of post-natal depression on children's adjustment to school. *British Journal of Psychiatry, 99*, 3-15.

Stallard, P. (1996). The role and use of consumer satisfaction surveys in mental health services. *Journal of Mental Health, 5*, 333-348.

Taylor, A., Atkins, R., Kumar, R., Adams, D., & Glover, V. (2005). A new Mother-to-Infant Bonding Scale: Links with early maternal mood. *Archives of Women's Mental Health, 8*, 45- 51.

Toth, S. L., Cicchetti, D., Rogosch, F. A., & Sturge-Apple, M. (2009). Maternal depression, children's attachment security, and representational development: An organizational perspective. *Child Development, 80*, 192-208.

Toth, S. L., Rogosh, F. A., Manly, J. D., & Cicchetti, D. (2006). The efficacy of toddler-parent psychotherapy to reorganise attachment in the young offspring of mothers with major depressive disorder: A randomised preventive trial. *Journal of Consulting and Clinical Psychology, 74*, 1006-1016.

Weiss, D. S., & Marmar, C. R. (1997). The Impact of Events Scale- Revised. In Wilson, J. P. & Keane, T. M. (Eds.), *Assessing Psychological Trauma and PTSD* (pp. 399-411). New York: Guildford Press.

Weissman, M. M., Sholomskas, D., Pottenger, M., Prusoff, B. A., & Locke, B. Z. (1977). Assessing depressive symptoms in five psychiatric populations: a validation study. *American Journal of Epidemiology, 106*, 203-214.

Witt, W., Wisk, L. E., Cheng, E. R., Hampton, J. M., Creswell, P. D., Hagen, E. W., et al., (2011). Poor prepregnancy and antepartum mental health predicts postpartum mental health problems among US women: A nationally representative population-based study. *Women's Health Issues, 21*, 304-313.

Appendices

Appendix 1: CORE-OM

Appendix 2: Mother-to-Infant Bonding Scale

Participant Number:

Age of Baby (weeks):

These questions are about your feelings for your child over the last two weeks. Some adjectives are listed below which describe some of the feelings mothers have towards their baby. Please make a tick against each word in the box which best describes how you felt in the LAST TWO WEEKS.

	VERY MUCH	A LOT	A LITTLE	NOT AT ALL
Loving				
Resentful				
Neutral or felt nothing				
Joyful				
Dislike				
Protective				
Disappointed				
Aggressive				

Appendix 3: Centre for Epidemiological Studies- Depression Scale (CES-D)

Appendix 4: Penn State Worry Questionnaire (PSWQ)

Appendix 5: Panic Rating Scale (PRS)

Appendix 6: Impact of Events Scale Revised (IES-R)

Appendix 7: Client Satisfaction Questionnaire

South London and Maudsley NHS
NHS Trust

Satisfaction with SLaM Psychology Services

We would be very grateful if you could answer some questions about the **Perinatal Psychological Therapies Service** that you have been receiving at SLaM. We are keen to find out how our service is experienced and to see if there are any ways in which you think we could improve.

Taking part in the survey is **voluntary**.

The survey is anonymous and the information you give us will be treated confidentially. Please give us your honest opinions, whether they are positive or negative.

When completed, please place this questionnaire in the envelope provided and hand it to the psychologist/therapist who gave you this questionnaire. They will not open the envelope and see the questionnaire; they will forward the envelope straight on to the address on the envelope. If you would prefer not to hand this to the psychologist (or there is no one to give it to), then please post the questionnaire back in the envelope provided.

Thank You

Satisfaction with SLaM Psychology Services Questionnaire

BEFORE SEEING YOUR PSYCHOLOGIST/PSYCHOLOGICAL THERAPIST
(who gave you this questionnaire)

1. Were you given any information about seeing the **psychologist/therapist** prior to your first appointment?

☐ Yes; ☐ No (if no, please go to question 3); ☐ Don't know / Not sure.

2. How satisfied were you with the quality and clarity of information sent to you?

☐ Very satisfied; ☐ Satisfied; ☐ Neutral; ☐ Dissatisfied; ☐ Very dissatisfied.

3. How satisfied are you with the length of time you had to wait for your first appointment with the **psychologist/therapist**?

☐ Very satisfied; ☐ Satisfied; ☐ Neutral; ☐ Dissatisfied; ☐ Very dissatisfied.

Please add any extra comments that you would like to make about questions 1-3

……..……
……..……..……

YOUR PSYCHOLOGIST / THERAPIST

The LAST time you saw your **psychologist/therapist** (who gave you this questionnaire)

4. Did they listen carefully to you?

☐ Yes, definitely; ☐ Yes, to some extent; ☐ No.

5. Did they treat you with respect and dignity?

☐ Yes, definitely; ☐ Yes, to some extent; ☐ No.

Please add any extra comments that you would like to make about your psychologist/therapist……..……
……..……
……..……
(Please continue on extra paper if required)

YOUR CARE PLAN

A care plan shows your mental health needs and who will provide services for you. It might be a document given to you by one of the mental health team, or it might be a letter, explaining how your care has been planned.

6. Have you been given (or offered) a written or printed copy of your care plan?

☐ Yes; ☐ No; ☐ Don't know / Not sure.

7. Were you involved in deciding what was in your care plan?

☐ Yes, definitely; ☐ Yes, to some extent; ☐ No; ☐ I did not want to be involved.

Please add any extra comments that you would like to make about your care plan

……

……

PSYCHOLOGICAL THERAPY

8. Are you currently having / have you recently had psychological therapy from the **psychologist/therapist** who gave you this questionnaire?

☐ Yes; ☐ No (if no, please go to question 14)

9. How long have you been having psychological therapy? (With the **psychologist** that gave you this questionnaire.)

☐ Less than a month; ☐ 0-3months; ☐ 3-6months; ☐ 6months +

10. Before you started therapy, how useful did you expect therapy to be in helping you deal with your problems?

☐ Not at all useful; ☐ Not very useful; ☐ Unsure; ☐ Fairly useful; ☐ Very useful.

11. Before you met with the **psychologist/therapist**, how bad was the problem(s) that brought you to our service affecting your life in general?

☐ Not at all; ☐ A little; ☐ Somewhat; ☐ A lot; ☐ Extremely

12. Since you have come to the **psychologist/therapist**, how badly is the problem(s) affecting your life in general now?

☐ Not at all; ☐ A little; ☐ Somewhat; ☐ A lot; ☐ Extremely

13. Have you found the therapy that you are receiving / have received helpful?

☐ Yes, definitely; ☐ Yes, to some extent; ☐ No; ☐ I did not have any therapy.

Please add any extra comments that you would like to make about the psychological therapy that you have received.....……..….....

…….....

OVERALL

14. Overall, how would you rate the care you have received from the **psychology service** in the last 12 months?

☐ Excellent; ☐ Very good; ☐ Good; ☐ Fair; ☐ Poor; ☐ Very poor.

15. Do you have enough say in decisions about your care and treatment?

☐ Yes, definitely; ☐ Yes, to some extent; ☐ No.

16. If you had a friend in a similar situation to yourself, would you recommend this **psychology service**?

☐ Yes; ☐ No; ☐ Don't know / Not sure.

Please add any extra comments that you would like to make about questions 14-16……..…….....……
……..……
……..……
…… *(Please continue on extra paper if required)*

17. How satisfied are you with the time and location of the appointment(s) offered to you by the **psychologist/therapist**?

☐ Very satisfied; ☐ Satisfied; ☐ Neutral; ☐ Dissatisfied; ☐ Very dissatisfied.

Please comment……...

……..……
…….....

(Please continue on extra paper if required)

18. What advice would you give us to help improve our service?

……..……..……
……..…….
…….....

ABOUT YOU

19. What was your year of birth? (Please write in)

e.g.

1	9	3	4

1	9		

20. To which of these ethnic groups would you say you belong? (Tick ONE only)

a. WHITE

☐British; ☐Irish; ☐ Any other White background (Please state)

b. MIXED

☐ White and Black Caribbean; ☐ White and Black African;

☐ White and Asian; ☐ Any other Mixed background (Please state)
……

c. ASIAN OR ASIAN BRITISH

☐ Indian; ☐ Pakistani; ☐ Bangladeshi; ☐ Any other Asian background (Please state) ……..……

d. BLACK OR BLACK BRITISH

☐ Caribbean; ☐ African; ☐ Any other Black background (Please state)..……

e. CHINESE OR OTHER ETHNIC GROUP

☐ Chinese; ☐ Any other ethnic group (Please state)
……..……

Thank you very much for your time and effort.

When completed, please place this questionnaire in the envelope provided and hand it to the psychologist who gave you this questionnaire.

The psychologist will not open the envelope and see the questionnaire; they will forward the envelope straight on to the address on the envelope. If you would prefer not to hand this to the psychologist, then please post the questionnaire back in the envelope provided.

If you have any questions about this questionnaire, please feel free to contact Dr Ana Costa, Trainee Clinical Psychologist at ana.a.costa@slam.nhs.uk or 0203 299 3277, or Dr Rachel Mycroft, Clinical Psychologist Tel. 0203 228 0304

Appendix 8: Referrer Satisfaction Questionnaire

South London and Maudsley NHS
NHS Foundation Trust

Perinatal Psychological Therapy Service: Referrer Satisfaction Survey

We are currently evaluating levels of referrer satisfaction with the service provided by the **Perinatal Psychological Therapy Service** at King's Hospital. We would be extremely grateful if you could help us by filling out this brief questionnaire. Please tick a box to indicate your response for each question.

Profession (e.g. Doctor, Psychologist, Nurse, etc):

_____

Service (e.g. CAMHS, Social Services, GP, etc):

_____

How many patients have you ever referred to our service?

_____

1. Did you find it easy to access information about our service?

Yes		*Do you have any comments you wish to add?*
No		

2. Did you have any interaction with our service prior to making your referral e.g., e- mail, telephone conversation?

Yes		*If yes, with whom?*
No		

3. Overall how satisfied were you with the information provided during this interaction?

Very satisfied		*Do you have any comments you wish to add?*
Quite satisfied		
Neither satisfied nor dissatisfied		
Slightly dissatisfied		
Very dissatisfied		

4. How satisfied were you with the time taken to receive written acknowledgement of the referral?

Very satisfied		*Do you have any comments you wish to add?*
Quite satisfied		
Neither satisfied nor dissatisfied		
Slightly dissatisfied		
Very dissatisfied		

5. Were any of the patients you referred assessed by our service?

Yes		*Do you have any comments you wish to add?*
No		

6. How satisfied were you with the assessment reports?

Very satisfied		*Do you have any comments you wish to add about the length, style/format, and quality of the assessment reports?*
Quite satisfied		
Neither satisfied nor dissatisfied		
Slightly dissatisfied		
Very dissatisfied		

7. Were any of the patients you referred treated by our service?

Yes		*Do you have any comments you wish to add?*
No		

8. How satisfied were you with the outcome of treatment?

Very satisfied		*Do you have any comments you wish to add?*
Quite satisfied		
Neither satisfied nor dissatisfied		
Slightly dissatisfied		
Very dissatisfied		

9. How helpful did you find the discharge psychology reports?

Very helpful		*Do you have any comments you wish to add about the length, style/format, and quality of the discharge reports?*
Quite helpful		
Neither helpful nor unhelpful		
Slightly helpful		
I did not find it helpful		

10. Overall how satisfied were you with the experience of referring to the King's Perinatal Psychological Therapy Service?

Very satisfied		*Do you have any comments you wish to add?*
Quite satisfied		
Neither satisfied nor dissatisfied		
Slightly dissatisfied		
Very dissatisfied		

11. Following your experience, is there any area you feel could be improved?

Yes		
No		

12. Please give details of any changes you feel would improve the service?

13. Do you have any final comments to make regarding your experience provided by the King's Perinatal Psychological Therapy Service?

We sincerely appreciate your support in completing this questionnaire and kindly request that you return it to the address detailed below. If you have any questions or queries regarding this evaluation, please do not hesitate to contact us at the contact details listed:

Dr Ana Costa
Clinical Psychologist in Training
ASB
4 Windsor Walk
Denmark Hill
London
SE5 8AF

Email: ana.costa@slam.nhs.uk
Telephone: 0203 299 3277

Supervised by Dr Rachel Mycroft, Clinical Psychologist, Tel. 0203 228 0304